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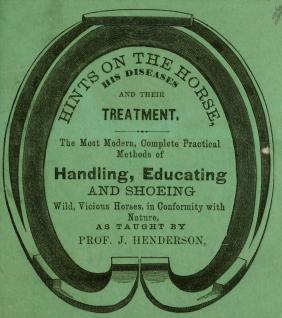








HORSEMAN'S GUIDE.



ACCORDING TO THE ENLIGHTENED SYSTEM OF THE PRESENT DAY.



THE

HORSEMEN'S GUIDE

AND FARRIER,

THE EXTERNAL AND INTERNAL STRUCTURE OF THE HORSE.

AND

THE DISEASES AND LAMENESS TO WHICH HE IS LIABLE IN THE DOMESTICATED CONDITION,

INCLUDING THE

MOST RECENT, APPROVED, COMPLETE METHODS OF HANDLING, EDUCATING, SUBDUING AND SHOEING A WILD VICIOUS HORSE,

IN CONFORMITY WITH HIS NATURE.

ACCORDING TO AN ENLIGHTENED SYSTEM OF THE PRESENT IMPROVEMENTS OF THE DAY,

AS IS CONTAINED

IN THIS BOOK, OF THE HORSE'S FOOT, Continued Perfect by the Use of the Foot-Form Shoe,

WITH THE ILLUSTRATIONS HEREIN SET FORTH,

BY PROF. J. HENDERSON.

ALBION, N.Y.: HENRY A. BRUNER, PRINTER, ORLEANS AMERICAN OFFICE. 1868. Entered According to Act of Congress, in the year A. D., 1868, BY PROF. J. HENDERSON

In the office of the District Court for the Northern District of New York.



PREFACE.

Something to Interest every one who owns a Horse or uses one. Veterinary Reform and Norse Tamer.

As the value of the Horse is daily becoming more manifest, it is presumed that an attempt to reduce into system the art of obtaining and preserving it in health and removing diseases, will not be unacceptable. It is certain that at no period in the history of the world has the Horse stood so high in general estimation, or by the display of his various powers, rendered himself an object more worthy our consideration.

The Horse's Foot and how to keep it sound, and the remarks upon the Horse, Manner of Keeping, the process of Training, Breaking, Educating, Handling and Shoeing wild and vicious Horses, in connection with the different diseases and the remedies attached, will be found in these pages. In my opinion, interesting, reliable and of valuable service to all Horses, or persons dealing in or handling them. This system of Handling, Controling and Subduing wild vicious Horses, is conceded by practical horsemen to be the most thorough and complete now known, and is the result of many original experiments and thorough investigation of the different methods of Horsemanship now in use. The first domestication of the Horse—the greatest achievement of man in the animal kingdom—was not the work of a day,

but like all other accomplishments, was brought about by a

gradual progress of observation and experience.

In laying this work before the public, the author does not flatter himself that all improvements are at an end. But it is his purpose to give the reader the benefit of a long and extensive original practice; as well as the knowledge of others, the success of which can be better appreciated after a free and thorough trial of the remedies prescribed.

I hold it to be my privilege and undisputed right to entertain distinct opinions, founded upon thorough experiment. Having no master but my own diligence and labor, I owe allegiance to none, yet am under obligations to all; for error

presents truth more prominent.

But while writers in general agree on theoretical principles and technical terms, much difference exists in the practical department of the art, in obtaining the useful value of the Horse, leading to any amount of unprofitable discussion, and not unfrequently most serious results. Therefore the author of this work has endeavored to give the reader a correct idea of the nature and treatment of that faithful servant and noble animal, the Horse, and have presented such, only though somewhat at variance with the popular opinion of the present day. Yet for the love of truth, long practical experience, induces me to present such as from long experience as a Horse man, I could with confidence recommends to the public. I have used and tested these improvements and remedies, with good success in my practice for year, and aided with that success, together with the experience of others, and a desire to furnish a work on which the public might rely, have induced me to issue this work. It is intended to supply the want long felt, something to interest every one who owns a horse or uses one, and their name is legion. This work is intended to be to all Horse owners in the present hour of need, one that will enable them to drive

PREFACE.

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improve the value, restore the sick, improve, control, train, shoe and subdue wild vicious horses, and still more valuable, prevent lameness and diseases, by furnishing conditions tayorable for health and value.

The absolute necessity of a reformed practice, adapted to the wants and capacities of all classes, has long been severely felt and acknowledged. Therefore, the author and publisher of this work is induced to spare neither time nor care in experiment in the preparation of the present edition, with a view to render it eminently worthy of general confidence, and hopes it may not disappoint the expectations of the friends of reform.

In the following treatise it will be seen that I have confined myself to the structure and diseases of the foot more nned myself to the structure and diseases of the foot more closely; the means of cure or prevention, and the more readily controling the valuable powers of the Horse. But while agreeing with my learned predecessors in regard to the nature, deformity and causes of diseases, I claim to have found a remedy, based on purely philosophical principles. This remedy consists in the proper curvature and adjustment of natures foot form shoe, for an improvement in which I am secured by Letters Patent, which I now offer to the am secured by Letters Patent, which I now offer to the public as the result of a long and critical investigation of twenty years shoeing and comparing the apparent changes and the apparent mystery of the art upon the perfect and imperfect shod and unshol hoofs, as are hereby exhibited by the plates, and the apparent changes produced by the common custom mat-form shoe, and the improved mode of shoeing, in conformity with the foot form shoe. I have made many experiments with the foot of the living Horse, I have availed myself of the works and diagrams of veterinary surgeons, Bracey Clark, in 1809, Colman, Hinds, Youatt, Dr. Dodd, Mayhew, and others, as the standard authority of the deformity exhibited by many tests from I850 to 1868 by me, VI PREFACE.

and the same corresponding truths still continue to exist, which the author of this book proposes to show the relief by introducing the improved mode of Shoeing, Training and Subduing the Horse, by the means set forth in this book. The Improved Patent Perfect Foot Form Shoe, made to fit nature, not distort, not only relieves but prevents most of those difficulties from accruing, hence is more valuable than a cure. This shoe admits of use upon the hardest roads and pavements without producing soreness or tenderness of the forward feet. These treatises are intended as eminently practical, and adapted rather to the wants of the smiths and community at large, than designed as a text book for the professional farrier, though it is to be hoped they too may find hints worthy of future reference for reform. Therefore, I have aimed at saying no more on the subject of anatomy than seemed necessary to the elucidation of my subject in this department.

I have had, through life, an admiration for the Horse, amounting almost to a passion. For years in early life I occupied myself in horse shoeing, studying the anatomy and diseases of the Horse's foot, and in experimenting upon the best method of keeping it sound. The information thus gained by practical experience has been arrived at by others. But while such information may be gleaned in fragments from various works. I know of none in which the proper manner of taking care of the foot and shoeing it are plainly set forth. It is to supply this want that I write this communication, and if I can furnish facts to any smith to lessen his toils or improve his craft, which he did not know before, and can thus be the means of promoting the valuable usefulness of that noble animal the Horse to the owner, I shall be repaid for my trouble. The diagrams accompanying will, it is believed, also be found useful, making clear that which

would otherwise be unintelligible.

PREFACE. VII

In conclusion, the author would say, that he has aimed to produce just such a work as should recommend itself to the public confidence, by its consistency, and by diagrams of many experiments of general utility. And if he has added any new suggestion, or made any important improvement, he looks to the same intelligent public for a patronage commensurate with his labors.

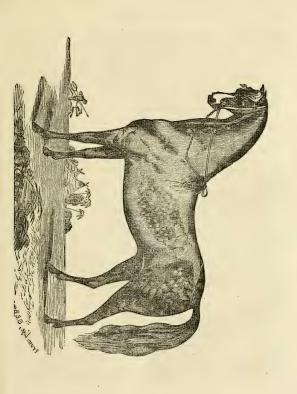
PROF. J. HENDERSON.

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The Introduction of Valuable Improvements. How to save the valuable powers of your Horse's Feet perfect.

The Inventor or moving part, being desirous to introduce his various self secured valuable improvements more readily, the Henderson Hand Power Foot-Form American Horse Shoe Machine, also contain the copy right in this book of the Perfect Horse's Foot, as the proper means of continuing the foot perfect by the form of shoe, and tools for shoeing, including the valuable information of training, shoeing and subduing wild vicious Horses, together with the remedies reliable for the diseases and lameness to which the Horse is liable. And that the public may receive a mutual benefit from these improvements, the patentee or moving party hath herewith transfered, sold, set over and delivered the especial privileges in book form to the Henderson Co-Equal Operative American Stock Association. Capital \$100,000. Business office at Albion, Orleans County, New York.

The Directors and Company will transact all business for this stock in the following manner: First, the stock holders in representation of their grand capital will sell a limited number of shares of this secured capital stock, by and through their President, Directors, Secretary, Treasurer and Company at \$10 a share, to produce sufficient necessary



funds to defray the expenses of publishing this book, and manufacturing the Henderson Hand Power Foot-Form American Horse Shoe Machine, as may become necessary to supply the demands of the public. All sums of \$10 deposited into the treasury of this Co-Equal Operative Stock Mutual Association will constitute the Depositor a stock holder to one share of \$100 in this capital stock, entitled to all the privileges, in the division of the business, increase sales of books, machines, territorial rights of the secured stock privileges, according to representation of stock shares, and no assessment or tax upon the stock holders. The patentee or moving party will be entitled to retain the one-half of the capital stock sales and privileges, the other half will be appropriated to the business transactions of the Company. The Patentee will also retain all the unrepresented shares of stock in the division of increase from the sales of business transactions, and will become personally actively employed in vending the improvements of secured privileges in the sale of the books, machines, tools and territorial rights upon the same terms as the agents are employed. Each stockholder may become an acting agent, impowered by the directors to canvass and sell at territorial rights of the various interests in representation throughout the United States of America, and retain 50 per cent. for his or their services, by paying the other half to the treasurer of this Company.

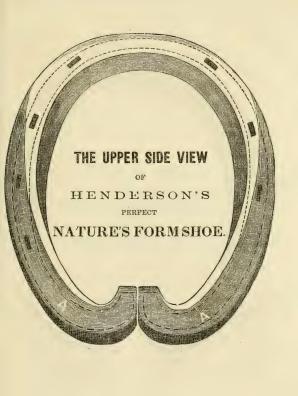
This Company desire Agents in your vicinity, and would be pleased to avail themselves of your valuable influence in selling our variety of interests.

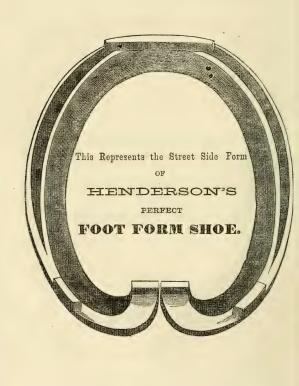
The first principle inducement for all the shoeing smiths, in connection with other self interested Horse owners in any town, ward or district, in the United States of America may obtain a limited number of 25 to 75 copies of this Company's Book representing the Perfect Horse's Foot, continued perfect by the foundation use of the Foot-Form Shoe, and con-

taining the valuable modern improvements in training, educating, shocing and subduing wild vicious Horses, together with the remedies reliable for the diseases and lameness to which the Horse is liable, which books are to be sold at the Company's prices, and privileges in the vicinity of the shoeing smith where the machine is to be operated by and for those interested in the Horse, for mutual benefit to the shoeing smith, book and horse owner. The agents so selling may retain fifty per cent. from the sales, for his or their services, for selling the Company's Book, or depositing the manufactors cost price of the American Hand Power Horse Shoe Machine, into the treasury of this company, upon which receipt of the deposite into the treasury of this which receipt of the deposite into the treasury of this Company the said cost of the machine, the shoeing smith may then order and obtain in full satisfaction for such deposit so made from the sales of the books or otherwise deposited in the treasury, one of the Henderson Foot-Form American Hand Power Horse Shoe Machine for the smiths especial use, competent to construct fifty shoes in one hour by the force or power of one man; with the right of territory to use the same, upon the express condition here understood, that the stock holders that have purchased the book of special privileges in the Horse's foot continued perfect by the Machine Foot-Form Shoe, may expect to realize in return privileges in the Horse's foot continued perfect by the Machine Foot-Form Shoe, may expect to realize in return from the shoeing smith owning the Co-Equal Operative Working Power Machine to have their horses shod with the Henderson Patent Foot-Form Shoe twenty-five per cent. less for new shoes than is the common custom price for the ordinary shoe. Hoping and confidently expecting by this Co-Equal Operative Capital Stock Association of interests to retain original or restore the foot form value and usefulness of the Horse to the owner by the foundation form of the shoe. In return the shoeing smith owning the machine will be aided by the hand power facilities of manufacturing more rapid, and a more appropriate form of shoes, encouraged by

the popular patronage of co-equal interests.

The shoeing smith may expect to compete with success over higher prices and less appropriate shoes produced at more expense by the old custom form of manufacturing in the old way by hand.





CHAPTER 1.

The External formation or structure of the Horse, and the disorders original therein:

Section 1. Scarcely any man who is in the habit of seeing many horses perform their labor, and observing their capabilities of several kinds will require, thereby; some insight of the proprieties conferred on the animal by such points of conformation. He can tell at first sight, nearly from their habits, what a Horse can do; but few men reduce their observations to writing, the principles, upon which we may afterwards reason, or draw conclusions, as to what duties a Horse cannot perform properly, when wanting those points of excellence which duties ought, therefore, never to be required of him, or, being so imposed upon him improperly, are productive of certain disorders, that invariably attend such misapplication of his powers. No doubt it has happened that a Horse with a radical defect-in the shape of his hind quarters, for example-yet having a corresponding defect before. The one makes up for the other, and such Horses may occasionally perform well for a short time, but they are no lasters. All the while they may thus be at the full stretch of their physical powers, straining to the utmost; the the immediate covering of the bones, something or other is going to rack, of muscle, or tendon of ligature, or sinew, sooner or later so much excessive fatigue of the deformity raus along the solids, and reaching the vitals, occasions constitutional disease, or leaves behind it an incurable malady of the limbs, mostly descending to the feet. To be able to judge of a Horses' defects as to what he cannot do, undoubtedly it seems necessary to ascertain what constitutes a perfect one, that a horse can do everything. A Horse that does not stand well can do nothing well. And by natural inference, the Horse that walks well can perform other powers well.

The most obvious physical truths are those which can be explained upon the principles of mechanism, that intelligence which is derived from experience of years, is rendered more easily understood when conveyed with mechanical precision. However strange it may appear to some, the gift of the Horses' speed if not of all progression, depends more upon mechanical principles than is commonly understood to be the case.

case

To be able to judge of a Horses' defects as to what he cannot do, it seems necessary to ascertain what constitutes a fine figure, or perfect one that can do everything. Then must his powers of pressing onward be estimated by the positions in which he can place the bones of his limbers, since it is to these propulsions of his body forward, is chiefly indebted to the power the Horse has of controlling the muscles and drawing up quickly the lower part of his limbs in time to get it out of the way of his hind legs; both motions forming each a separate effort toward progression. Have in view a walking pace, all other paces being no other than a modification of the walk; and in fact, a Horse that walks well can do everything well; in some Horses the hind foot, instead of coming forward, as described, upon the spot of ground marked by the fore one, falls short of the mark .-These never turn out fast ones, although their fault does not always consist in the shape or disproportion of the bones, but in the contraction of the muscles or tendon described

under treating of the feet.

At times it is owing to relaxation of the immediate coverings of the bones that sustain the rapid violent motion. If the hind foot comes down sometimes inside, at other outside, the foretoot, the animal has a disagreeable rolling in his gait from side to side. The fault being as often in the fore leg as in the hinder one, and sometimes in both; such Horses commence a journey with much apparent confidence, but tiring soon fall into their old errors and are found to be deceptive. and many accidents are the consequences. This fault, I hesitate whether to asscribe to the fore or the hind one; but it certainly originates in a disagreement between the fixing of the two upon the body, either as to the situatiom or want of muscular strength at the place of joining. Such a Horse is a stumbler, and when he trots away from us we can see nearly as much of the fore leg as his hind leg. In the straight built, well set limbed, the fore legs are concealed from our sight by the hind ones. I own this is with me a grand criterion for judging as to the Horses' capability of usefulness in going over the ground. In racing, trotting, or any progressive motion, the fore legs are then brought closer together, the hind legs rather wider. So in leaping as we may see in the gray hound, deer, and all other fleet animals, such as I have described, is the art of progression with all Horses', but in various degrees, according to their size, as with the coach-horse, saddle-horse and pony, for such efforts having called into action all the bones of the body, including more or less that of the head, tail or neck, according to the pace, or other circumstances. Hence it must be clear that to perform this duty of propulsion, or getting forward properly, as regards rather the length of time he sustains it, or the quickness of performance, the limbs must be adapted to the kind of work the horse has to perform, and to

each other, whether that be in harness or the turf, the chase or on the road. We do not find this adaptation of the limbs so much in the amount of covering the bones many have on them, as in the size and proportion of those or the suitable manner in which they are fastened together, as may be seen in the (blood) Horse where tendon supplies the place of muscle, and most strange the most strength resides in the smallest compass, as may be proved by the obstructions of his pace which is always observable in the Horse bothered with very muscular shoulders. Equally true is it, that after we have approved of the proportions of a pair of Horses in respect to bones and build, certain powers of motion or lastingness are frequently discovered to be possessed by one so much beyond his match, that we are compelled to admit those powers do besides in something else than in his build, superior health, sound wind and courage, give this strength with speed and lastingness. The bones being well cased together and strongly supported by their immediate covering, have full and fair play. But wherever they be fundamentally ill-adapted to each other in whatever degree this escapes our observation, the muscles and tendions parts adapt themselves in some measure to the lamentable kind of form, but which no filling up, or after accommodation of the parts to each other can completely eradicate. Though it may be concealed from our view, the muscle that is so perverted, rises up in the middle as if some sprain or other bad caused that appearance. The contiguous parts, consequently undergo greater fatigue than in the event of finer symetry, would have fallen to their share, and the extraordinary friction or working thereof, occasions at a day more or less remote, the exhaustion of its powers, and the lodgment of acrimoneous matter in the celluber membrane, which appears in tumors, absesses, &c. This protuberant appearance of the muscle is most visible at the stifle and shoulder, just above the elbow. A more minute inquiry. however, on these points would lead me away too far from my main purpose, at present. I therefore return to notice, in the first place, the structure of the leg and feet of such Horses as by their untoward position entail on them the chances of producing some one or other of those evils that are known to afflict certain Horses, incurable to the end of their days.

Thus some are known to tread on the inner quarter of the boof, others on the outside, without the real cause being ever ascertained. Remedies are frequently applied that have not the remotest chance of achieving any good, on that very account. Some Horses cut in consequence of treading on the outer quarter. On the contrary, by injuring the inner quarter in treading, others contract a disposition to quitter, ring-bone; formal form of the hoof, disease of the frog, the sensible sole, and form injuries of the cornet, as the case may be. The various domesticated modes of wrong treatment of cultivation, naturally the dry stable usages, and high heeled deformed shoes, without a support, and protection to the frog, The most important portion of the usefulness of the support, to the motion upon the foot of a perfect Horse, remains to be examined into hereafter. It may not be amiss to observe that the right mode and make may be discovered by noticing the proportion of those Horses' that by the acknowledged just symmetry of their bones, the agreement in size of one limb with another, and the faultless manner in which those

are attached to the body, go tolerably free from any such diseases, until old age, accident, or the misapplication and mal-form shoe, bring on disease of the feet and limbs.

At the ends of all bones a yelding substance, in appearance like bone itself, prevents friction, and by its elasticity gives a spring to the animals steps. The ease of a Horse going, or ease of his rider, mainly depends upon this substance, which receives the name of cartilage, and is liable in some measure to be absorbed or taken up into the system, or in case of dis-

eased joints, to become stiff and bony. We may notice this observation in very many young animals, whose bones are all substituted by cartilage, until the blood furnishes the means of forming a more substantial frame, such as I have been describing, and teaches the validity of some remarks Not only between, and embracing every joint but at the termina-tion of the four legs in their horny feet, is this springy sub-stance to be found. The whole being liable to wear out, to contract or to harden with age or disease. Besides this easing of the joints in cartilage, the ligaments connect or tie the bones together. These ligaments are troubled with that of great lassitude when the animal is tired, and occasionally to sprain. This accident takes place when the Horse steps aside upon uneven ground. The ends of the bones press laterally upon the ligaments. It frequently follows, of course, that mis-shaped horses' feet are always constrained to an uneven tread, and must be subject to a constant strain, and more liable than others to incur permanent accident, by every step in an undue animal motion. The ligament demanding the readers most serious attention, is that which suspends the neek, so placed and passing from the skull to the back bone. To both of which it is fastened, it has the power at the will of the animal, of bending down or drawing up the head, which would, in fact, fall to the ground if not for this support. Pollevil, for more detail on this hitherto neglected point of conformation, At the joints formed by the bones covered by cartilage, the whole are surrounded by a strong membrane, which wraps the bones tightly, and secretes an oil at the joints for the further defense from the effects of friction. Of this secretion, and of the membranes generally, some further notice will be given. The strong membrane is not, however, confined to any particular part, but continues its close attachments, or embracement of the bones over the entire frame of the horse. Throughout its extended course

it serves as an excellent hold-fast for the sinew-ends of the muscles which are attached to it above, and joints, whereby they act as levers to raise the lower bones of the limbs, as described hereafter.

The Sensorial Function.--- The Nervous System.

An accurate knowledge of what constitutes just structure of the horse, the form and connection of the parts on which strength, or fleetness, or stoutness must necessarily depend, is claimed by nearly all who have had anything to do with this noble animal. But in reality it is possessed by very few. The nervous system will now pass in review. It is the moving power of the whole machine, it consists of the brain, to which all sensation is referred or carried, and from which all voluntary motion is derived-the spinal cord, a prolongation of the brain thus connected with sensation and voluntary motion, governing all the involuntary motions of the frame.—And by power from which the heart beats, and the lungs heave, and the stomach digests. And on the other important auxiliary of the nervous system the ganglionile-presiding over the functions of secretion and of nutrition. And the repair and the welfare of the frame generally, many large and powerful muscles are necessary to turn the head in various directions, as well as to assist in raising it when depressed, on raising any part of the skull of the horse, the dense strong membrane which is at once the lining of the cranium and the covering of the brain-the duramater-presents itsself. It is united to the membrane before by numerous little cords or prolongations of the substance, conveying blood and communicating strength to the parts between the membrane common to the cranium and the brain. The proper investing of that organ; is found that delicate gossomer web appropriately called the *arachnoid*, the spiders membrane—and which is seen in other animals, designed either to secrete the fluid which is interposed, and for the purpose of obviating injurious concussion, which not only covers the external surface of the pia mater, but the surface of the brain. But penetrates into every depression, lines every ventride, and clothes every irregularity and part and portion of the brain. When the brain is cut, it is found to be composed of two substances very unlike in appearance. One principally on the outside, gray, or ash colored, and therefore called the cortical (darklike). From its situation and cineritious, (ashen), from its color, and the other laying deeper in the brain, and from its pulpy nature called the medullary substance, The medullary portion is connected with the nervous system. The nerves are prologations of it, and are concerned in the discharge of all the offices of life. They give motion and energy to the limbs, the heart, the lungs, the stomach, and every part connected with life. They are the medium through which sensation is conveyed, they supply the mind with material to think and work upon. The cineritious part has a different appearance, and is differently constituted. Some have supposed, and with much appearance of truth, that it is the residence of the mind -receiving the impressions that are conveyed to the brain by the sensative nerves, and directing the operation and action of those which give motion to the limbs. From the medullary substance, as already stated, proceed certain cords or prolongations, termed nerves, by which the animal is enabled to receive impression from surrounding objects, and to connect himself with them; and also to possess many pleasurable or

painful sensations. One of them is spread over the membrane of the nose and gives the sense of smell. Another expands on the back of the eye and the faculty of sight is gained. And a third gowes to the internal structure of the ear, and the animal is conscious of sound. Other nerves, proceeding to different parts, give the faculty of motion, while an equally important one bestows the power of feeling. One division of nerves springing from a prolongation of the brain, and yet within the skull, wanders to different parts of tne frame, for important purposes connected with respiration or breathing. The act of breathing is essential to life, and were it to cease the animal would die. These are nerves of involuntary motion; so that whether he is awake or asleep, conscious of it or not, the long heave and life is supported. Lastly, the spinal cord another prolongation of the brain, and running through a cavity in the bones of the neck, back and loins, and extending to the very tip of the tail.— Other nerves are given off at certain intervals. The spinal cord is combined of six distinct columns or rods, running thorough its whole length—three on either side. The two upper columns, the portion of spinal marrow, as represented, proceed from those posts of the brain devoted to sensation. Numerous distinct fibers spring abruptly from the column, and which collect together and passing through a little ganglion as enlargement—an enlargement of the nervous cord is called a gorgli m-become a nerve of sensation, from the low-er or under lid. Prolongation of the part devoted to motion, proceed other fibers, which also collect gradually together, and form a nervous cord giving the power of motion. Beyond the ganglion the two unite and form a perfect spinal nerve, possessing the power both of sensation and motion. And the fibers of the two columns proceed to their destinatination enveloped in the same sheath, apparently one nerve, each covered by its own membrane, but all enveloped in a

common envelope, all these nerves or organs of sensation and motion—but there are others whose origin seems to be outside of and below the brain. These are the sympathetic, so called from their union and sympathy with all the others identified with life itself. They proceed from a small ganglion or enlargement in the upper part of the neck, and form a collection of little ganglion in the abdomen. They go to the heart, and it beats to the stomach, and it digests. They form a net-work round each blood vessel, and the current flows.—They surround the yery minutest vessels, and the frame is nourished and built up. The reader, we trust, will now comprehend this wonderful, yet simple machinery, and be able by and by, to refer to it.

The Nerves.

These run in pairs, mostly to all parts of the body. They are the organs of sense, communicating immediately with the brain, and are thus principally concerned in the functions of voluntary motion They give motion and energy to the limbs, by the heart, the lungs, the stomach, and every part connected with life, thus connected with sensation and voluntary motion. Presiding over the functions of action and of nutrition, and the repair and the welfare of the frame generally. They are the medium through which sensation is conveyed, governing all the involuntary motions of the body and limbs. They supply the mind with material to think and work upon. That a horse entertains likes and dislikes is certain. He has a memory, too, both for persons and places, as every one knows. He must therefore have perception, and

he is kind and docile in his nature, which entitles him to a kinder return from his master than he usually receives. As the nerves of a horse are the seat of no distinct disease, I shall content myself with adding that they consist of small cords, white and roundish, like thread, and are certainly the vehicles of pain, which vibrate from one to the other, pleasurable sensation being conveyed by the same means to the sensorium, or brain.

Cartilage.

Not only between bones and embracing every joint, but at the termination of the fore legs in the horny feet, is this springy substance to be found. The whole being liable to wear out, to contract or to harden with age or disease. Besides this easing of the joints in cartilage, the ligaments connect or tie the bones together. These ligaments are seldom troubled with ailment, but that of great lassitude, when the animal is tired, and occasionally to sprain. This takes place when the horse steps aside upon uneven ground, and the ends of the bones press laterally upon the ligaments. It follows, of course, that mis-shapen horses' feet whose feet are always constrained to take an uneven tread, must be subject to a constant strain, and must be more liable than others to incur permanent accident. The inconsistent custom of foreing the horse fast upon hard uneven streets, with his heel-calks extending outside of the hels of the wall at the quarter of the foot upon a foundation concave, when the force of the motion comes upon the shoe, at an angle of 45 degrees,

it will and does produce uneven tread The leveradge eccentric force forward from the heels of the shoe outside of the wall at the quarters and fore from the centre of support of central motion, must crowd the wall to the centre, subject it to a constant strain, and more liable to incur permanent accident, every uneven step forming a trivial one. At the points formed by the bones and covered cartilage, the whole are surrounded by a strong membrane, which wrap the bones tightly, and secrets an oil at the joint for its further defence from the effects of friction. Of this secretion, and of the membranes generally, some further notice is given.

CHAPTER II.

The Chest. Its Contents. Its vital important connexion with the Valuable Power of Motion.

The chest, in the horizontal position in which it is placed is of a somewhat oval figure, with its extremities truncated (cut off.) The spine is its roof; the sternum, or breast, its floor; the ribs, its sides; the trachea, æsophagus, and great blood vessels passing through its anterior extremity and the diaphragm, being its posterior. It is contracted in front, broad and deep towards the central boundary, and again contracted posteriorly. It encloses the heart and the lungs, the origin of the arterial and the termination of the venous trunks and the collected vessels of the absorbents. The windpipe penetrates into it, and the æsophagus traverses its whole extent.

Most ingeniously and admirably is this whole structure

contrived to fill its various purposes.

The ribs are eighteen in number on either side. Nine of them are perfect, and commonly called the true, or more proply, sternal ribs, extending from the spine to the sternum. The remaining nine are posterior and shorter, and are only indirectly connected with the sternum.

The ribs are united to the corresponding vertebræ, or bones of the spine, so as to form perfect joints—or, rather, each rib forms two joints. Before the ribs reach the sternum, they terminate in a cartilaginous prolongation. The cartilage is united to the ribs and sternum by joints, and the cartilages of the posterior ribs are united to them in the same manner.

The sternum, or breast bone, is a long, flat, spongy bone, forming the floor of the chest. It supports the ribs by the

connecting cartilage

The front of the chest is a very important consideration in the structure of the horse. It should be prominent and broad, and full, and the sides of it well occupied. When the breast is narrow, the chest has generally the same appearance; the animal is flat sided, the proper cavity of the chest is diminished, and the stamina of the horse are materially diminished, although, perhaps, his speed for short distances may not be affected. When the chest is narrow, and the forelegs are too close together, in addition to the want of bottom, they will interfere with each other, and there will be wounds on the fetlocks, and bruises below the knee

A chest too broad is not desirable, but a fleshy and a prominent one; yet even this, perhaps, may require some explanation. When the fore-legs appear to recede, and to shelter themselves under the body, there is a faulty position of the fore limbs, a bent, or standing over, an unnatural lengthiness about the fore parts of the breast, sadly disadvantageous in progression.

The Intercostal Muscles.

The spaces between the ribs are occupied by muscles firmly attached to their edges, the fibres of which cross each other in the form of a letter X. By the prolongation thus ob-

tained, they have a much greater latitude of action, than they would have if they run straight from rib to rib.

The ribs protect the important viscera of the thorax from injury, and are powerful agents in extending and contracting the chest in the alternate inspiration an expiration of air.

The Proper Form of the Chest.

This leads to a very important consideration. The advantageous form of the chest for the proper discharge of the natural or extraordinary functions of the thoracic viscera, (the contents of the chest,) the lungs and the heart; the first to render the blood nutrient and stimulating, to give or restore it that vitality which will enable it to support every part of the frame in the discharge of its function, in devoid of which the complicated and beautiful machine is inert and dead. And secondly to conver this purified extensions dead. And secondly to convey this purified arterialized blood to every part of the frame.

blood to every part of the frame.

In order to produce, and to convey to the parts a sufficient quantity of blood, these organs must be large. If it amounts not to hypertrophy, the larger the heart, and the larger the lungs, the more rapid the process of nutrition, and the more perfect the discharge of every animal function. That form of chest which approaches nearest to a circle, while it admits of sufficient expansion and contraction is the test, certainly for some, and all under peculiar circumstances, with reference to the discharge of certain functions. This was the grand principle on which Mr Bakewell proceeded, and on which all are improvements in breeding cattle were founded. which all our improvements in breeding cattle were founded. In the heavy draft horse, the circular chest is no disadvantage,

it gives him what we require, weight to oppose the weight of his load. Speed is not demanded of him. Some of our saddle and cab horses have barrels round enough, we value them on account of it, for they are always in condition, and they rarely tire. But when we look at them more carefully, there is just that departure from the circular form of which mention has been made, the happy medium between the circle and the clipse, which retains the capacity of the one and the expansibility of the other. Such a horse is invaluable for common purposes, but he is seldom a horse of speed, if he is permitted to go his own pace, and that not a slow one, he will work to the end of life. But if he is too much hurried, he is soon distressed. The broad deep chest then for the usual purposes of the road, and more particularly for rapid progression. Search is made for that form of the chest that shall unite to as great a degree as possible, considerable capacity in arrangement, and the power of increasing that capacity when the animal requires it. There must be the broad chest for the production of muscles and sinews, and the deep chest to give the capacity or powers of furnishing arterial blood, equal to the most rapid exhaustion of vitality. It is to the mixture of the Arabian blood that we principally owe this peculiar advantage of the horse. The Arab is light, some would say too much so before, but immediately behind the Arm, the barrel almost invariably swells out, and leaves plenty of room, where it is most wanted for the play of the lungs, and at the same time where the weight does not press so exclusively on the fore legs, and expose the feet to conersion and injury. Many horses with narrow chests and a great deal of daylight under them, have plenty of spirit and willingness for work. They show themselves off and gratify the vanity of their riders on the park or parade. But hey have not the appetite nor the endurance that will carry them through three successive days hard work. Five out of six of the animals that perish from inflamed lungs, are narrow chested. There are many other important points, but that which is most of all connected with the general health of the animal, with the combined flectness or bottom, is a deep and broad chest, with sufficient lengthening of the sternum or breast-bone beneath.

The Spine and Back.

The spine or back consists of a chain of bones from the poll to the extremity of the tail. It is made of twenty-three bones from the neck to the haunches. Eighteen are called dorsal vertebræ, composing the back, and five lumbar vertebræ, occupying the loins. The structure and attachments of these are remarkably well calculated for easiness of carriage and strength.

The Diaphragm---Its Internal Action and External Action.

The interposed curtain extending across the cavity of the chest between the thorax and abdomon, is called the diaphragm, (midriff). It is an irregular muscular expansion, proceeding from the inferior surface of the lumbar vertebre posteriorly, and superiorly adhering to the ribs on either side,

and extending obliquely forward and downward to the sternum, or rather its a flatened muscle arising from all these points with its fibers all converging towards the centre, and terminating, therein an expansion of tendinous substance. It is lined anteriorly by the pleura or investing membrane of the thoacic cavity, and posteriorly by the peritoneum or investing membrane of the abdomonal cavity. The diaphragm is the main agent, both in ordinary and extraordinary resperation. It assists also in the expulsion of the urine, and it is a most powerful auxiliary in the act of parturition. It is subject to in jury and disease of a serious and varied character. Whatever may be the original seat of thoracic or abdominal ailment, the diaphragm soon becomes inflamed. This accounts for the breathing of the horse being so much affected under every inflamation or excitement of the chest or belly. The irritability of this muscle is often evinced by a singular spasmodic action of a portion or the whole of it.

Rupture of the Diaphgram.

Rupture of the diaphragm may sometimes occur particlarly when the stomach is distended with food or gas. In rupture of diaphragm, the horse usually sits on his haunches, like a dog; this is far from being an infallible symptom of the disease. It accompanies introception as well as rupture of the diaphragm. Mr. Youatt, gives no remedy, and probably the case admits of none.

The Pleura.

The walls of the chest are lined, and the lungs are covered by a smooth glistening membrane. The Pleura

is a serius membrane, so called from the nature of its exhalation in distinction from the muçous secretion yielding by the membrane of the air passages. The serius membrane generally invests the most important organs, and always those that are essentially connected with life. While the mucous membrane lines the interior of the greater part of them. The Pleura is the investing membrane of the lungs, and a muceous membrane of the lining of the bronchea tubes. Among the circumstances principally to be noticed, with regard to the Pleura, its external surface, the glistening appearance of the lungs, and of the inside of the chest, are to be attributed to the membrane by which they are covered, and by means of which the motion of the various organs is freer and less dangerous. Although the lungs, and the boney walls which contain them are in constant approximation with each other, both in expiration and inspiration. Yet in the frequently hurried and violent motion of the animal in fact in every act of expiration and inspiration, of dilation, and contraction, much injurious friction would ensue if the surfaces did not glide freely over each other by means of the peculiar polish of this membrane. Every serious membrane has innumerable exhalent vessels upon its surface, from which a considerable quantity of fluid is poured out. In life and during health it exists in the chest only just sufficient to lubricate the surface. The Pleura possesses very little sensibility in health. But it is otherwise when it is the seat of disease. In pleurisy, preunioria, &c., it becomes susceptible of intense pain.

The Pleura adheres intimately to the ribs and to the substance of the lungs spread to other parts. Those of the ser-

ius membranes are generally isolated.

The Lungs.

The lungs form two distinct bodies. The right somewhat larger than the left, and are divided from each other by the duplicature of the pleura, which has been already described. The mediastinum. Each lung has the same structure and properties, and uses each of them is subdivided, the right lobe consisting of three lobes, and the left of two. The intention of these divisions is probably to adapt the substance of the lungs, so the form of the cavity in which they are placed, and to enable them more perfectly to occupy and fill the chest. If one of these lobes is cut into, it is found to consist of innumerable irregularly formed compartments, to which anatomists have given the name of lobes, or little lobes. They are distinct from each other, and on close examination, they can be subdivided almost without end. There is no communication between them, or if perchance such communication exists, it constitutes the disease known by the name of broken wind. On the delicate membrane of which these are composed, innumerable minute bloodvessels ramify. They proceed from the heart. Through the medium of the pulmonary artery they follow all the sub-divisions of the bronchial tubes they ramify upon the membrane of these multitudinous lobes and at length return to the heart through the medium of the pulmenary viens. The character of the blood which they contain, being essentially changed. The mechanism of this and the effects produced must be briefly considered.

Concerning the internal Structure. Its conformation, The Functions, The organs of Life, and the Discuses to which each is liable, with outlines of the remedy. By a Line of Practice, at variance in some material points, with the Present mode of Treating the Animal, in Health as well as in Disease.

Before I proceed to describe those several parts of the horse. inside, it appears to me an absolute necessity for previsously making the reader better acquainted with a few general topies, that we may proceed with the details smoothly and more intelligibly together, viz: The names, uses or offices and powers of that inferiority of the small organs which lie spread over most parts of the body and limbs, belong in common to several of those parts in nearly equal degrees, the large organs having the power of carrying on the animal system. First, as regards digestion; second, those employed in the circulation of the blood; and third, those of respiration, are to well known too the sight to require explanation here, yet the heart, kidneys, and lungs are composed or made up entirely of the minor organs I mean first to describe. But the precise way in which these act in and upon the larger ones, the share they hold in furthering the system of animal life, and the eminent rank their services maintain in restoring health when the system is anyway disordered, has not received, in the practice of horse men, that share of serious consideration the importance of the subject demands. To these points then, I shall shortly call the readers undivided attention, as some cramp words and phrases as

applied by most writers and others to those offices of the animal organs, they stand in need of previous explanation; each kind of organ, whether small or large, was designed by the great Maker of all thing, to perform some office towards the preservation of the animal in health. When such office is performed properly, as ordained, the organ is said to perform its functions well. For example, the heart is given for the purpose of sending the blood through the arteries, all over the body and limbs to the extremities. But when the the pulse beats low or irregularly, that organ is said to perform his functions badly. When it ceases to beat, this function is lost or gone. So, certain of the organs are said to secrete something or other that is liquid. The doing this is their function; the power of doing so that of secretion, and the article secreted or collected together, is called the secretion of this or that organ. Thus the kidneys secrete urine, and it runs off.

The glands under the jaws secrete spit, (saliva), which passes off with the food by the intestins. Therefore are they properly considered are exerctory; also seeing both secretions are drawn together for the express purpose of being so sent away. This last by the grand canal, (the gnt) as the first mentioned is by the Bladder, and the perspiration is through the porses of the skin. But some secretions are found that have no outlet visible to us weak mortals, though they find their way through the skin sensibly enough at times. And this then becomes the sensible prespiration, and in health one of the two is always in action, in disease not so. When, however, it happens such functions are destructed, or on the other hand, too much of either secretion is furnished to the system, then disease begins. As does also, our duty of finding what part of the vast machine has ceased to perform its office properly. For without this previous information, no man can possibly know how to apply the remedy in restor-

ing the disordered organ to the proper exercise of its function. Nor can any one hope to arrive at this desirable point of veterinary knowledge, unless he has acquired the means of ascertaining where, when and in what degree the mischief has taken place, by patiently examining the action of those organs while in health, and comparing their appearance after death, with the particular symptoms which precede that event.

Secretion, although, as I say, the secretions just spoken of are important in themselves, and the several sorts, as bile or gall by the liver, urine, by the kidneys &c., yet the chief object of our present notice is the secretion of a fluid, more or less watery, which prevades the whole system. It differs in quality, little anywhere, being adapted to the nature of the parts requiring its aid. First in softening and enabling the parts to move freely over each other, as between the ends of bones). 2d, acting as a defence against injuries from extrancous bodies, (as on the inner coat of the intestines). And 3d to prevent the parts from growing together, (as the liver to the midriff &c.,) misfortunes, these which invariably happens when the supply of this fluid falls short of the quantity required for a long while together. And this is the case when ever the animal is worked or deranged until the fluid at some part or other is exhausted, a circumstance fluid at some part or other is exhausted, a circumstance that strongly bespeaks the propriety of allowing the worn-up, poor creature more frequent supplies of water, althothis be done in small quantities. Inflamation or fever, which is occasioned by suddenly checking the secretion, eventually exhausts this moisture by its great heat. Both these disorders are therefore referred in the sequel, to the same origin. The first being local, or pertaining to some particular organ or part, while the fever pervades the whole system, and the solids in particular. The total absence of the propriety products when the discussion of the sence of perspirable matter marks both diseases. On the

other hand, when too much of this fluid is secreted, and remains unabsorbed, disease ensues upon the heart. It forms dropsy of the covering of the heart. On the covering of the lungs it becomes dropsy of the chest. In the membrane of the belly, it forms dropsy of that part, and usually falls into scrotum. The powers of medicine have hitherto proved of no avail in the first description of ailments, and are but partially applicable to the last mentioned. The operation of tapping too frequently disappoints our hopes, to induce us to rely upon it as any other than a temporary relief.

It is, therefore, seldom or never applied to the horse.

Thus in whichever way we view this important secretion, its eminence must strike us as quite equal to any other whenever obstruction in this part of the system takes place in the horse. The consequent adhession of the parts being invisible, he gets worse used by his exorbitant master for his inability to perform his usual work, and he soon falls a victim to the lash, the spur, and the bit. At the joints this fluid is considered to be an oil or Synovia. At the heart it is confessedly nothing but water, while it partakes of a mucous or slimy nature at some other part of the body. This is the case with the membrane, of the throat and gullet; and those of the nostrils. The heat of the horses' breath converts it into a vissid mucus, when the secreted watery particles come off by sweating. It assuming a white or milky appearance after a little time appearing thicker and more slimy as the sweating continues, &c. The watery particles becoming less and less, its fluidity is also lessened. In all animals the secretion of this watery fluid is carried on by the membranes, which are thin films placed between the various organs over the bones and among the fleshy parts. These not only secrete but sustain the fluid in its place, that is so secreted and held to its purpose, each partades more or less of water, is more or less slimy, or consists more or less of an oily nature accord-

ing to the use it may be designed for. Each kind of membrane and its proper secretion has received a learned name, the first being called serous, the second mucous, the third fibrous. But having resolved to abandon learned words, whenever the thing can be understood as well without them, I find less occasion for introducing them here than is generally practiced. For the peculiar nature of the horse having assimated together, by its action, the three kinds of secretion more so than is the case with other animals, and its habits contributing as much more to the hasty calling off of one kind of fluid from certain parts to the assistance of another part, which may have been exhausted of its kind, as the treatment of the horse in all cases of a disordered secretion of the fluid is the same throughout. The action of medicine upon one always affording the assistance to another, as I shall prove shortly, there is no such necessity for carrying the distinction farther in horse medicine, although it may be so in the human practice. Perspiration is always at a great heighth in the horse. It is one of the chief means of cure in most of his disorders, and it consists in drawing the watery secretions from all parts of the body. These pass to the surface, readily coming through the membranes from the joints, the solids, the bowels, and their coverings, as may be noticed in the case of hide-bound, upon opening the animals that die in this state of nature. The messentary canal, (bereafter described), is invariably discovered with yellowness. being at times almost orange color. But I have as constantly found the lacetals of a fine coated horse, shine through as white as milk. Again. On over working the horse so much of the joint-oil is sometimes drawn off by perspiration, that he becomes stiff in the knees, for want of that softening quality which keeps the parts supple. We feel the same ourselves at 60 years, upon such occasions. And in taking off the knee or the haugh of a permanently, stiff-jointed horse, we

invariably have found the joint-oil affected. In very bad cases it no longer exists. During life the escape of this oil by reason of wounds, (as bad broken knees,) leave the joint stiff. Further comment on its uses is unnecessary. But those facts should teach his owners a practical lesson of moderation. On the subject of absorption. Of these secretions, I noticed many years ago, a very ingenious reason assigned for lameness of the fore legs of an English horse, in the great work of the elder Lafosse, on what he calls hippo-pathology, or the diseases of horses, he says: "The fluids which did lu-Being reduced in quantity, the food plying off by sweat.—
The remainder gets thicker in consequence, and the solids of his limbs become stiff and dry. It happens mostly in the fore limbs, and he calls it a cold or chill. And says, at page 267, it resembles a "stroke of the shoulder," cheval froid et pris daws spanles. A species of founder, that is clearly not to be cured by external applications, as by the oils of firing, &c., but by restoring to the parts the functions of secretion, a sufficient supply of the fluid which had been so exhausted. In these few words are included the whole secret of my method of cure in such attacks as in this case, gently sweating is that remedy which is best calculated for restoring the functions, conditions favorable will produce favorable results.

We come now to speak of glands, nerves and membranes, (Being first sympathetic,) and muscles which are the names, writers and practitioners of eminence have agreed to speak of those minor organs that are employed throughout in carry ingon the functions of animal life, their uses where of, I come shortly to explain. The reader is already aware of sinews, of three kinds that more immediately cover the bones and keep them in their places, to which, if we add the mention of the muscular or fleshy parts, and refer to the circulation of the blood for a description of the veins and arteries, he

will have before him the names of all the integuments of a horses' body beneath the skin.

Detailed particulars respecting all these follow next in their order. The larger organs of the inside being reserved to the subsequent section of this chapter.

The Heart.

The heart is placed between a doubling of the pleura, termed the modiastineum, by means of which it is supported in its natural situation, and all dangerous friction between these important organs is avoided. It is also surrounded by a membrane or bag of its own, called the pericardium, whose office is of a similar nature. By means of the heart the blood is circulated through the entire frame. It is composed of four cavities, called auricles, from their supposed resemblance to the ear of a dog, and two below termed ventricles, occupying the substance of the heart. In point of fact, there are two hearts, the one on the left side impelling the blood through the frame, the other on the right side conveying it through the pulmonary system, but united in the manner in which they are, their junction contributes to their mutual strength, and both circulations are carried on at the same time. The first is the arterial circulation. No function can be discharged, life cannot exist, without the presence of arterial blood. The left ventricle that contains it contracts and by the powers of that contraction, aided by other means, which the limits of our work will not permit us to describe, the blood is driven through the whole arterial

circulation, the capillary vessels and the veins, and returns again to the heart, but to the right ventricle. It has gradually lost its vital power as it has passed along, it has changed from red to black, and from a vital to a poisonous fluid, ere it can again convey the principle of nutrition, or give to each organ that impulse or stimulus which enables it to discharge its function; it must be materially changed.

When the right ventricle contracts, and the blood is driven into the lungs, it passes over the gossamer membrane of which the lobules of the lungs have been described as consisting of the lobules being filled with the air which has descended through the bronchial tubes in the act of inspiration. This delicate membrane permits some of the principles of the air to permeate it. The oxygen of the atmosphere attracts and combines with a portion of the super-abundant carbon of the blood, and the expired air is poisoned with carbonic acid gas. Some of the constituents of the blood attract a portion of the oxygen of the air, and obtain their distinguishing character and properties as arterial blood, and being thus revivified, it passes on over the membrane of the lobes, unites into small and then larger vessels, and at length pours its full stream of arterial blood into the left auricle. thence to ascend into the ventrical to be diffused over the frame.

Diseases of the Heart.

The best place to examine the beating of the heart is immediately behind the elbow, on the left side. The hand applied flat against the ribs will give the numbers of pulsations, the ear thus applied will enable the practioner better

to ascertain the character of the pulsations, pericarditis. The bag or outer investing membrane of the heart case is liable to inflamation in which the effused fluid becomes organized and deposited in layers, increasing the thickness of the pericardium, and the difficulty of the expansion and contraction of the heart. The only symptoms on which dependence can be placed, are a quickened and irregular respiration, a bounding action of the heart in an early stage of the disease, but as the fluid increases and becomes concerte, assuming a feeble and fluttering character. Hydropos pericardi is the term used to designate the presence of the fluid secreted in consequence of this inflamation, and varying from a point to a gallou or more. In addition, the contraction of the secreted in consequence of the sufficient of the secreted in consequence of the sufficient of the secreted in consequence of the sufficient of the secreted in consequence of this inflamation, and varying from a pint to a gallon or more. In addition to the symptoms already described, there is an expression of alarm and anxiety in the countenance of the animal which is not in other maladies produced. The horse generally sinks from other diseases, or from constitutional irritation, before the cavity of the pericardium is filled, or if he lingers on, most dreadful palpitations and throbbir gs accompany the advanced stage of the disease. It is seldom or never that this disease exists alone, but is combined with dropsy of the chest or is productive of abdomen difficulty.

Inflamation of the Lining of the Heart.

Mr. Simpson relates in the Veterinarian for 1834, a case in which there were symptoms of a severe abdominal pain; the respiration was much disturbed, and the action of the heart took on an extraordinary character. Three or four beats succeeded to each other so violently as to shake the whole frame, and to be visible at the distance of several yards, with intervals of quietude for five minutes or more. At length these violent breathings became constant. On dissection both lungs were found to be inflamed, the serum in the pericardium increased in quantity, and the internal membrane of the heart violently inflamed, with spots of echymosis, livid spots occasioned by extravasated blood.

This would seem to be a case of inflamation of the heart,

This would seem to be a case of inflamation of the heart, but in considerable proportion of the cases of rabies. Those spots of echymosis and the general inflamation of the heart are seen, Hypertrophy, is an augmentation or thickening of the substance of the heart, and although not dreamed of a few years ago, seems now to be a disease of no rare occurrence among horses. The heart has been known to acquire double its natural volume, or the auriele and ventricle on one side have been thus enlarged. Dilatation is increased capacity of the cavites of the heart, and the parietes being generally thined, it is probable, and from the circulating power being lessened or almost suspended, on account of the inability of the cavites to propel their contents, it is accompanied by much and rapid emaciation, ossofication of the heart, air in the heart, and ancurism of the aorto sometimes occur.

The Arteries.

The vessels which carry the blood from the heart are called arteries. The yielding of the artery to the gush of blood as forced into it by the contraction of the heart, constitute the pulse. The pulse is a very useful assistant to the

practitioner of human medicine, and much more so to the veterinary whose patients cannot describe either the seat or degree of ailment or pain, the number of pulsations in any artery will give the number of beatings of the heart, and so express the irritation of the organ, and of the frame generally. In a farmers horse in health the heart beats about 36 times in a minute, in the smaller or thoroughbred 42 is the pulse of health. The most convenient place to feel the pulse is at the lower jaw. When the pulse reaches 50 or 55 some degree of fever may be apprehened, and proper precaution should be taken, 75 will indicate a dangerous state. A weak pulse, when the arterial stream flows slowly, is caused by the feeble action of the heart, it is the reverse of fever, and expressive of debility. The appressed pulse is when the arteries seem to be fully distended with blood. There is obstruction somewhere, and the action of the heart can hardly force the stream along or communicate pulsation to the current. It is the ease in sudden inflamation of the lungs. They are overloaded and gorged with blood, which cannot find its way through their minute vessels. Local inflamation is characterized by redness, swelling, heat and pain. Inflamation consists of an increased flow of blood to and through the parts.

Fever in Horses.

Fever should not always be treated as disease; for, in a great majority of cases it is only symptomatic of some local or general derangement. Fever is the same in its essential character under all circumstances and forms which it exhibits. The different "grades," as they are termed, are but varieties

of the same condition, produced by variations in the prevailing cause, or regulated by the amount of vital power in each given case, are therefore an index pointing to the progress of the disease, operating to ward off the malady and restore health. An eminent physician has said, our indications of cure and modes of treatment are to be learned from the manifestations of the vital operations uniformly witnessed in the febrile state. If fever marks the action of the healing power of nature, which we must imitate to be successful, why should we not consult the febrile phenomenon for our rule of action. Now, what are the indications of cure which we derive from this source. In other words, what are the results which nature designs to accomplish through the instrumentality of fever. They are an equilibrium of the circulation, a properly proportioned action of all the organs, and an increased depuration of the system, principally by the excrementitions outlets. Suppose a horse shall be suffering from a form of disease known as gastro-intestinal, occasioned by an accumuation of partly digested food within the stomach; the mass acts as an irritant, an exciting cause, and the result is inflamation, (local fever) Then general excitement, or sympathetic action, which is manifested by increase in number and volume of pulse, hurried respiration, superficial heat, &c. Now it is evident that the inflamation-local fever-is not confined to the stomach alone, but becomes general, as we have just said, through the sympathetic relations. The effect of this general abnormal condition is to mitigate the force of the disease on the primary tissue, or tissues, to shift the weight of the burden, and so apportion it to the several parts of the system, as to lessen its intensity

The heat at the external surface shows that the circulation is active. Without heat there is no vitality in the system, and without blood there is no heat. Then the blood must be sent to the surface for the purpose of relieving the interna

organ, and therefore fever must, under some circumstances, be considered favorable to the cure of disease. Hence the reader will perceive that the practitioner whose creed is "The more fever, the more blood letting," is one of the greatest opponents nature has to deal with, and it is no wonder that so many animals are said to die of fever; it is most probable, however, that many die from the treatment. The practice of indiscriminate drenching, under the circumstances, with salts and aloes, many times prove just as de-structive as the injudicious use of the lancet, for purgatives of this character act on the alimentary surfaces as mechanical irritants, and then and there set up a pathological action, to counteract which nature rallies her forces from the external surface, and employs them in the vicinity of the parts where they are not wanted, until mans unwise interference conflicts with the well planned arrangement; in short, made nature turn a somersault. When the increased action and heat are manifested on the surface, does it not prove that the different organs are acting harmoniously in self-defense? Is not this same action manifested through the same channels in a state of health, and if morbific materials are present in the system, and are the causes of fever, will the mode of evacuation be different from that of health? Certainly not. Hence the marked tendency of fever to evacuation by the skin in profuse perspiration, from the nostrils in the form of catarrh, by the bowels as in diarrhoea, and lastly by abcess. Therefore the great secret of curing disease consists in acurately observing by what critical evacuations nature casts off whatever may be the cause of her infirmities, and in following and assisting her agreeably to her indications, for she acts with great regularity. When an animal has taken cold, and there is power in the system to keep up a continual warfare against encroachments, the disturbance of vital action being unbroken, the fever is called pure or persistent. Emanations

from animal or vegetable substances in a state of decomposition or putrefaction, or the noxious miasmia from marshy lands, if concentrated and not sufficiently diluted with atmospheric air, enter into the system, and produce a specific effect, in order to dethrone the intruder, who keeps up a system of aggressions from one tissue to another, the vital power arrays ner artillery, in good earnest, to resist the invading foe; and if furnished with the munitions of war in vading toe; and it furnished with the multitons of war in the form of sanative agents, she generally conquers the enemy, and dictates her own terms. While the forces are equally balanced, which may be known by a high grade of vital action, it is also called unbroken or pure fever. The powers of the system may become exhausted by efforts at relief, and the fever will be periodically reduced. This form of fever is called remittent. By remittent fever is to be understood that modification of vital action which rests or abates, but does not go entirely off before a fresh attack comes. It is evident in this case, also, that nature is busily engaged in the work of establishing her empire, but being more exhausted, she occasionally rests from her labors. It would be as absurd to expect that the most accurate definition of fever in one animal would correspond in all its details with of fever in one animal would correspond in all its details with another case, as to expect all animals to be alike. There are many names given to fevers, for example, we have milk or puerperal fever, symptomatic, typhus, inflamatory, &c. Veterinary surgeon Percival, in an article on fever says: "We have no reason—no not so much—to give fever a habitation in the abdomen, than we have to enthrone it in the head. But it would appear from the full range of observation, that no part of the body or limbs can be susceptible of inflamation, (local fever,) though at the same time, no organ is invariably or exclusively affected. From this we learn that disease always attacks the weakest organ." The same author continues: "All I wish to contend for is, character, species, and require the same general means of cure; and that, were it not for the local affection, it would be difficult or impossible to distinguish between the one or the other."

Dr. White, V. S., says: "Some practitioners do not admit the existence of fever in the horse as a primary disorder; they are sensible men, but consider it as a symptom dependent on internal disease. Then why not attend to the internal disease, instead of attempting to cure the fever. It would be a very difficult task for us to convince mankind generally that fever does not require to be treated as the real enemy, for fevers are very fashionable diseases, and it is a very easy matter to convince a man that his horse has got a fever, and he is always willing to pay for its treatment." Mr. Blane, A. V. S. refers only to three different kinds of fever, the common or simple fever, symptomatic fever, and malignant epidemic fever. Mr. White, V. S. thus refers to fever: "The fevers of a horse, for it is of little importance whether we call them fevers or inflamation, are generally connected with inflamation either of the mucous or serous membranes, or both in other words. Fever may be of the catarrhal kind, as in the epidemic catarrh, or the violent influenzas which sometimes prevails in the spring or beginning of summer, fever may affect the mucous surface of the stomach and bowels, when it causes great languor and debility."

Our own definition of fever is, that it is a symptom of disease, arising in consequence of sympathy of the system with disease in some particular part. Pleurisy, for example, consists in inflamation of the serous membranes within the thorax, and at the commencement, and indeed during the various phases of the malady, fever may be present, manifesting itself in the usual manner, but are we to treat the fever, the mere manifestation of the disease—pleurisy—or shall we not find it more in accordance with the principles of

reason to endeavor to cure the latter? Fever is present in all cases of an inflamatory character, therefore we would warn our readers not to let fever in the horse so engross their attention as to everlook the real malady. Next to inflamation, fever is the great scarecrow of the empyric, when, in fact, there is nothing very alarming about the fever itself, yet it leads us into the by-paths of former ignorance, for if there were not previous disease, there could be no fever, so that he who merely treats fever, is playing the part of mountebank to the disease then present. A few illustrations will serve to explain. A man, for example, munifests paroxysms of cold, hot and sweating stages; these phenomena may prevail in different degrees, and their mode of succession vary, but if the three different stages are evident, the case is called intermittent fever. Now, disection of those who have died of intermittent fever show a morbid state of many of the viscera of the thorax and abdomen, but the liver and organs concerned in the formation of bile, as likewise the mesentery, are those which are usually most affected—Hooper. Why, then, should men trifle with the lives of their patients in raging fevers of this type, when such important organs as the above are the primary ones involved. Then, again, in cases of typhoid fever, post-mortem examinations reveal inflamation of the brain and viscera, and more particularly of the stomach, intestines and peyers glands, is it not reasonable, then, for us to suppose that fevers-the febrile symptoms-appear subsequently to the above diseases, that they develop them in so slow and insidious a manner as not to be noticed until what men are pleased to denominate fever sets in, this being at that stage of the disease the most marked symptom, and not having the privilege of inspecting the patients internal organization, and of course being in the dark as to what is going on there, we jump at the conclusion that the patient has some sort of a fever, and name

it according to the type and intensity. It is then treated secundum artem.

A horse may all at once show signs of febrile phenomena, but who is so wise as to be able to demonstrate that an error in general management had not previously deranged the equilibrium of the vital forces ere the first symptom of fever appeared, so in the case of a cow, the subject of puerperal fever, she may have been for months in a state of plethora, (an abnormal condition,) which is generally the case with such animals, the disease perhaps has been a state of incubation for some time, but at length it arrives at a stage when the vital forces succumb-a general febrile state speedily followshence the fever is not the real malady. Our limits will not admit of further discussion under this head, other than to remark, that this is an age of reason, "God-like reason," and the World should be dotted over with medical investigators, who are willing to solve the problems of disease and health according to the principles of reason, disregarding the stereotyped conclusions of by-gone days.

Three forms of fever occuring in the horse are alluded to by the author of Hippopathology. First, common fevers, second, diopathic, and third, symptomatic. The first is but a general diffuse inflamation, the second arises without any apparent local injury, and the third from some local cause or iritation. The above distinguished author, however, is evidently aiming at perfection, for he has classed these three under the signification of one common kind, and he also alludes to two of a kind that are uncommon, which he names specific, arising from some special, mysterious or unknown

cause. See Hippopathology, vol. 1, page 144.

Treatment of Fever under the Iron Heel of Medical Despotism.

We are bound to "arrest its progress, and to mitigate its violence." But suppose we do, are our patients any better off? The records of the past will show. A rational system of veterinary medicine contemplates in the treatment of febrile symptoms, nothing more than a kind of expectancy, if the patient be in the cold stage, administer warm diffusible stimulants and diaphoretics, aided by warmth and moisture externally, friction on the extremities, and if necessary, stimulating applications to the chest and extremities. In the hot stage, and when the superficial heat of the body is great, cooling drinks are indicated, water acidulated with cream of tartar makes a good febrifuge. The patient may be occasionally sponged with weak saleratus water. The alkali has a beneficial effect on the cutnaneous vessels, while the water lessens the temperature of the body. No treatment, however, can be of any rational use, unless it contemplates a restoration of the healthy equilibrium of the whole system.

Let the doctor treat the disease, and a good, attentive groom can manage the fever. It has been a universal custom to resort to the lancet from time imemorial. The most talented of the profession have invariably resorted to the flem as their sheet anchor, in the treatment of this inflamation of the lungs, pneumonia. Mr. Percivall uses the word "pneumony," instead of "pneumonia," to express a state of congestion or of inflamation in the lungs. The disease

may be in the congestive or inflamatory stages, simple or complicated, involving the bronchial or pleural membranes, either the one or the other, acute and sub-acute are also terms applied to this disease. But these terms have merely reference to the stage or intensity. This is one of the most destructive in the catalogue of veterinary diseases. We object to the depletory system, for we have no idea of bleeding a horse to death with a view of saving life. If, as it frequently happens, in this disease, the lungs are congested, and the abstraction of blood will promote the free and full circulation of that which remains, then there might be some excuse for blood letting. It will be urged that horses do get well after being bled, but this is no proof of its utility; on the contrary, it goes to show, as in the case where a horse receives a violent blow on the head, by which the skull is fractured, and he recovers, that his health is restored in spite of the violence done. Blood is the fuel that keeps the lamp of life burning. It is the sum of the powers that resist disease. Without blood there is no heat, no motion in the body or limbs. Its abstraction leaves the various organs less capable of self-defense. But there are other reasons why we object to the use of the lancet, and the first is, the disease can, if curable, be cured without abstracting blood. Secondly, in every disease wherein bleeding has been resorted to, complete recovery has been protracted, and the animal manifests the debility by swollen legs, and other unmistakeable evidences of derangement of the normal condition. Thirdly, because the letting of blood impoverishes that which remains in the system, and leads to other equally dangerous diseases as the one it was intended to cure.

We are aware that our uncompromising opposition to discontinuing the use of the lancet, as we also have been formerly in the treatment of pneumonia, will subject us to the sneers of its advocates, who by the by, are, generally speaking, a hundred years behind the age. Their dogmas are to them, what the laws were to the Medes and Persians. But some consolation is afforded us in the fact that there never was a new science but was opposed by some. The science that Harvey labored to discover, was bitterly opposed even by professional men, Galileo, Newton, Franklin and Fulton. Indeed a host of men of kindred genius have been assailed and pronounced the humbugs in their day. Modern improvement in Henderson's Perfect Foot Form Horse Shoeing, Training and Controlling Wild Viscious Horses, may expect to share the same opposition at the present day. But what care we for censure, when engaged in this glorious reform, if we can arrest the stream of blood and error that is now flowing in consequence of an evil system of controlling, shoeing and treating the horse.

Something of Interest to every one who owns a Horse or uses one.

The question is asked why are so many horses lame, the echo answers why? This question is frequently asked.—Lameness is so common that we can scarcely see a horse that is not either lame or if not so it is because both feet or limbs are alike stiff and sore. As we pass along the street side walk it is seldom we see a horse moving or standing with his limbs and feet in a natural position, but generally find some with one foot set out as far as it can be reached, others with both thrown forward, some with contracted hoofs, evident fevered feet, some standing tip toe with their knees bent forward, others sprawling like a bear on their pasterns, some with

sunken breasts or shrunken shoulders, and many with cracked hoofs, rigid surfaces and more with contracted heels, and indeed, it is rare to see a perfect foot on a horse after he is five years old or has been shod three years. Have you examined your horses' foot, its parts are somewhat complicated, yet their design is simple and obvious, the foot is not as it appears to the careless eye a mere solid lump of insensible bone fastened to the leg by a joint. It is made up of a series of thin layers or leaves of horn, about five hundred in number, nicely fitted to each other and forming a lining to the foot itself. Then there are as many more layers belonging to what is called the coffin bone, and fitted into this .-These are elastic; take a quire of paper and insert the leaves one by one into those of another quire, and you will form some idea of the arrangement of these several layers. Now the weight of the horse rests on as many elastic springs as there are layers in his fore feet, about four thousand, and all this is contrived not only for the easy conveyance of the horses' own body, but of the human bodies, and whatever burdens may be laid upon him. In the first place the colt is taken in hand to break. The owner, perhaps, not a judge of colts, thinks he will make rather a fancy horse, he tell the blacksmith that he wants the horse shod forward, to do it in the most scientific style, make his foot look fancy, cut the heel down so as to have a wide heeled shoe, cut away the frog, dress out the bottom of the foot, and do it up brown, as the colt should be shod scientifically, the first time. He says, sock the nails home, clinch fast, don't be afraid of your rasp. Now he looks as if he could travel, and if there is any trot in him it must come out. Again the question is asked, what is the course of this lameness? I trust reasons may be given for this and I hope this may put some on their guard and may set others thinking.

CHAPTER III.

Of the Horses' Limbers.

In speaking of the structure of this noble animal, and the points which guide the opinion of real judges of him, we should as briefly and as simply as we are able, explain those fundamental principles from which many of the nerves take their origin, and on which his usefulness of the limbs, and beauty must depend.

The Fore Leg.

Those parts of the frame which are most essentially connected with the valuable action of the horse, (the seapula or shoulder blade.) There is strong legamentous attachments and connections with the chest, which form the connecting centre of motion of the limbs, to the chest and elevated ridge called the spinous process of the withers. High withers have been always in the mind of the judges of the horse, associated with good action, and generally with speed. The

reasons is plain enough. They aford larger surface for the strong elastic attachments of the muscles of the scapula, to the sides of the chest and the elevation above. The muscles act with greater advantage, as the rising of the parts depends not only upon the muscles of the legs and shoulders, but on certain connecting with bone of the limbs and chest with the spinous process of the vertebræ of the elevated ridge. The longer the arm of the lever to which the power applied, the easier and the greater height will the weight be carried up and forward from the central pivot of motion. Good, high action and speed, will not therefore be often found without this conformation.

The Mumerus or lower Bone of the Shoulder.

Forming a joint with the scapula or shoulder blade, at the point of the shoulder, is the *Humerus*, the central point of motion. It is a short strong bone, standing backward in an opposite direction to the shoulder blade. At the shallow cavity of the scapula or shoulder blade, in a well formed horse, this bone can scarcely be too short.

The Slanting Direction of the Shoulder.

It will be observed that the shoulder blade and the lower bones of the shoulder are not connected together in a straight line, but form a very considerable angle with each other.—
The fore and hind extremities in the situations they occupy in the horse are similar, his angular construction of the limbs reminds us of the similar arrangement of the springs of a carriage, and the ease of motion and almost perfect freedom from jolting, which are thereby obtained.

The Arm.

The arm extending from the elbow to the knee, it consists in the young horse of two distinct bones, the long and front bone called the radius, is nearly straight, receiving into its upper end the lower head of the humerus, and the lower end corresponding with the upper layer bones of the knee. The short and hinder bone is called the ulma. It has a very long and powerful projection, received between the heads of the humerus, and called the elbow. It then stretches down, narrowing by degrees, to the middle of the front bone, where it terminates in a point. The two bones are united together by cartilages and ligaments, but these are by degrees absorbed and changed to bore, and before the horse becomes old the whole of the arm censists of one bone only.

The strength of the horse so far as his fore limbs are concerned, resides principally in those muscles which give size to the arm. A full and swelling fore arm is the characteristic of every thorough bred horse, whatever other good points the animal may possess, if the arm is narrow in front aud near the shoulder, flat on the side, and altogether deficient in muscular appearance, that horse is radically defective. He

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an neither raise his knee for rapid action, nor throw his legs ufficiently forward. The arm should likewise belong, in reportion to the length of the muscles, the degree of conraction of which it is capable, and in proportion also to the egree of contraction will be the extent of motion in the limbs eneath. There are other muscles of the fore arm employed 1 extending the limb. The principal one, called the catensor vetaccarpi. Its office is to extend the leg. The next muscle 1 situation and importance is called the catensor padis.

The tendon of another extensor muscle, and a curious obque one, passing over the tendon, confining it in its situation, and likewise assisting in extending or straightening the ig. The muscles employed in bending the leg are both numrous and powerful. Two of the superficial ones are given. The first is called the flexor medius metacarpi, because its offices to bend the leg. The other is called the flexor metacarpi extrus. And is also designed to flex the leg. The internal exor, its office is also to bend the leg. A portion of one of ne most powerful of the flexor muscles, and powerful indeed are must be, is the flexor brachii. It is the muscle by hich almost alone the whole of the leg below the arm is ent, and carried forward and unward.

There are other muscles of the leg and foot not necessary

be named here.

Youat says, "Sprain of the Shoulder."

The muscles of the shoulder blade are occasionally injured y some severe shock. This is effected oftener by a slip or side fall, than by fair violent exertion. It is of considerable importance to be able to distinguish this shoulder lameness from injuries of other parts of the fore extremity. There is not much tenderness, or heat, or swelling. It, on standing before the horse, and looking at the size of the two shoulders, or rather their points, one should appear evidently larger than the other, this must not be considered as indicative of sprain of the point of shoulder, which a slight examination will determine. In sprain of the shoulder, the horse evidently suffer extreme pain while moving, and the muscle underneath being inflamed and tender. He will extend it as little as possible. He will drag his toe along the ground. It is in lifting of the foot that the shoulder is principally moved. If the foot is lifted high, let the horse be ever so lame, the shoulder is little, if at all affected.

In shoulder lameness, the toe alone rests on the ground—The circumstance which must of all characteris this affection, is that when the foot is lifted and then brought considerably forward, the horse will express very great pain, which he will not do if the lameness is in the foot or the leg. In sprain, of the internal muscles of the shoulder, few local measures can be adopted. Youatt says, the horse should be bled from the vem on the inside of the arm, (the plate vein,) because the blood is then abstracted more immediately from the inflamed parts. A dose of physic should be given, and fomentation applied, and principally on the inside of the arm, close to the chest, and the horse should be kept as quiet as possible. The injury is too deeply seated for external stimulants to have very great effect, yet a blister will properly be resorted to, if the lameness is not speedily removed.

Note by Mr. Spooner. The symptoms of shoulder lameness as pointed out in the text, are for the most part correct. A horse, however, never points in this disease, but will sometimes keep the lame limb further back than the other. The

pain is almost entirely felt in motion, and not in sustaining the weight, whilst in strains of the flexor tendons, there is no pain in extending the limb, but only when the weight comes upon it so that a horse, in the latter case, steps short with the sound leg, and long with the lame one, and the very reverse in shoulder lameness. Bleeding from the arm and mildly blistering the shoulder, generally succeeds in effecting a cure.

Broken Knee.

The treatment of broken knee is a subject of considerable importance, for many horses are sadly blemished, and others are destroyed by wounds in the knee joint. The horse when falling, naturally throw his knees forward, on tripping they receive all his weight, and are sometimes very extensively lacerated. The first thing to be done is by very careful washing with warm water, to clense the wound from all gravel or dirt. It must then be ascertained whether the joint is penetrated. The grating of the probe on one of the bones of the knee, or the depth to which the probe enters the wound, will too plainly indicate that the joint has been opened. When the joint is opened the treatment must be conducted on very different principles from that of an ordinary wound, and to keep down inflamation. When the joint is opened, these measures are to be avoided, as they increase irritation, by keeping open the joint, and encouraging the flow of synovia, (joint oil,) and the entrance of air. In a case of open joint, our principal endeavor must be to close the joint

with all possible dispatch. But even with judicious treatment, our chances of success will materially depend on one or two circumstances, viz: The size of the wound, the cavity opened, and the fact as to whether inflamation is already set up in the joint or not, if the latter be the case, our chances of success are very slight, for the joint will, in all prodability, become anchylosed or stiff. We may in a great measure, ascertain the existence of inflamation by the animal placing the limb in a bent position, and keeping it in motion by pawing from uneasiness. There are various methods of closing an open joint. A simple and often a very effective one, is by means of a solution of byehloride of mercuryin a solution of spirits of wine, and applied to the wound several times a day, by means of a feather, till the synovia ceases to flow. Another is the application of the hot iron. The object in both these modes is to coagulate the synovia, so as to form a temporary plug to the joint, till nature has time to close it more permanently. If either of these methods are adopted, it will not do to apply a poultice afterwards, as this would wash away the plug which we have sought to form .-Another method of treatment, is to apply compresses of bandages and paste, letting them continue on for a length of time, so as to close the joint mechanically. Over the bandages we may apply linsced poultices with advantage, as by so doing we keep down inflamation without washing coagulated synovia from the wound. By this means we may succeed even in formidable wounds, if inflamation has not been previously set up in the joint. It is very desirable that the horse should keep the limb in a straight position lying down should therefore be avoided.

The Mince.

To avoid the effects of concussion in so exposed a part, six distinct bones, each covered above and below with a thick coating of cartilage, connected together by strong ligaments but separated by interposed fluids and membranes, form the knee. The knee should be broad. It should present a very considerable width compared with the arm above or the shank below, in proportion to the breadth of the knee is the space for the attachment of muscles. In proportion to the breadth of the knee there will be more strength, and likewise the direction of some muscles will be less oblique, and the course of others will be more removed from the centre of motion, in either of which cases much power will be gained.

The Leg.

The part of the limb between the knee and the fetlock consists of three bones, a large one before, called the cannon, or shank, and two small or splint bones behind, the smaller bones are placed behind the larger ones on either side, they are united to the larger bone by a ligamentous substance, they reach from one half to two thirds of the length of the

shank bone, and through their whole extent are united to it by this substance. But from the animal being worked too soon or too violently, inflamation ensues, bony matter is deposited in the room of the ligamentous, and a bony union takes place instead of the natural one. There is no doubt that the ease of motion is somewhat lessened by this substitution of bone, however, mischief does often immediately extend to the neighboring parts. The disposition to deposit bone reaches beyond the space between the larger and smaller bones of the leg, and a tumor first callous, and afterwards bony is found, with part of its base resting on the line of union between these bones. This is called a splint. The splint is invariably found on the outside of the small bones and generally on the inside of the leg. The inner splint bone receives the principal weight thrown united to the small bones of the knee, and bony tumors occasionally appear on other parts of the shank bone, being the consequence of violent blows or other external injuries, and are commonly called splints. When the splint of either sort is forming, the horse is frequently lame, for the perostum or membrane covering the bone is painfully stretched.

Tied in Below the Knee.

Immediately under the knee is one of those ligamentous rings by which the tendons are so usefully bound down and secured. But if the hinder bone of the knee, the trapezium, described, is not sufficiently prominent, this ring will confine the flexor tendons of the part too lightly, and the leg will be

very deficient in depth under the knee. This is called being tied in below the knee. Every horseman recognizes it as a most serious defect. It is scarcely compatible with speed, and most assuredly not with continuance. Such a horse cannot be ridden far, or fast without serious sprain of the back sinews. There are few more serious defects than this, tying-in of the tendons immediately below the knee. In a perfect leg, and towards its lower part, there should be three distinct and perfect projections visible to the eye, as well as perceptible by the finger. The sides of the shank bone being the most forward of the three, next the suspenery ligaments and hinder most of all the flexor tendon. When these are not to be distinctly seen or felt, or there is considerable thickening about them and between them, and the leg is round instead of flat and deep, there has been what is commonly, but improperly called, strain of the back sinews. These tendons are enclosed in a sheath of dense celular substance, in order to confine them in their situation and to defend them from injury. Between the tendon and the sheath, there is a mucous fluid to prevent friction. But when the horse has been over worked, or put to sudden or violent exertion, the tendon presses upon the delicate membrane, lining the sheath and inflamation is produced. A different fluid is then thrown out, which coagulates, and adhesions are formed between the tendon and the sheath, and the motion of the limb is more difficult and painful. At other times from violent or long continued exertion, some of the fibers which confine the tendons are ruptured. A slight injury of this nature is called a sprain of the back sinews or tendons, and when it is more serious, the horse is said to have broken down. It should be remembered, however, that the tendon can never be sprained because it is inelastic and incapable of extension. The tendon, or its sheath, are scarcely ever ruptured, even in what is called breaking down. The first injury is confined to inflama-

tion of the sheath, or rupture of a few of the attaching fibers This inflamation, however, is often very great, the pain intense, and the lameness excessive. The anguish expressed at every bending of the limb, and the local swelling and heat. will clearly indicate the seat of injury. Youatt, said in every serious affection of this kind, care should be taken that the local inflamation does not produce general disturbance, of the system, and therefore, the horse should be bled and physiced. The bleeding may be at the toe by which an important local as well as general effect will be produced, the vessels of the heart will be relieved, while fever will be prevented .-Note by Mr. Spooner. In the original description of the anatomy of these parts in the text, there are one or two omissions which it is necessary to supply. The office of these tendons is two fold, viz: To flex the limbs and also to sustain a great portion of the animals weight. They therefore act both as sinews and as ligaments. In the latter office they are greatly assisted by a strong ligamentous substance which is attached to the common bone above, and to the perforans tendon below, for which, indeed, it forms a sheath. In those strains of the tendons where the enlargement takes place. just under the knee, this ligament is the seat of mischief, and the effect is, if not early subdued, to cause a contraction of the sinews, and consequently produce first a straight or knuckling, and afterwards an over shot fetlock, so that the animal is rendered useless, and requires in order to restore him to any degree of usefulness, the performance of an operation denominated division of the flexor tendon.

The Fetlock.

The fetlock-joint is a very complicated one, and from the stress which is laid on it, and its being the principal seat of motion below the knee, it is particularly subjected to injury. There are not many cases of sprain of the back sinow that are not accompanied by inflamation of the ligaments of this joint, and numerous supposed cases of sprain higher up are simply affections of the fetlock. It is frequently occasioned by bending the joint in a lateral direction, and injuring the capsular ligaments of the joint. Lateral motion in these joints is very limited. Therefore if a horse treads on a round body or maintaining the violent eccentric force by one big heel calk alone, or gets his foot in a hole, and the strain comes upon the side of the joints, lameness is generally the result. It requires a great deal of care and some experience to distinguish the one from the other. The heat about the part, and the point at which the horse least endures the pressure of the fingers will be the principal guides.

Wind Galls.

Youatt says in the neighborhood of the fetlock are frequently found on either side of the back sinews enlargements on the hind leg oftener than the fore one, which are denominated,

windgalls. Between the tendons and other parts, whenever the tendons are exposed to pressure or friction, and particularly about the the extremities, little bags or sacs are placed, containing and suffering to ooz slowly from them a mucous fluid to lubricate, (make slippery,) the parts. From undue pressure and that most frequently caused by violent action and straining of the tendon, or often from some predisposition about the Horse, if these little sacs are injured, they take on inflamation, and sometimes become large and hardened. There are few horses perfectly free from them. When they first appear and until the inflamation subsides, they may be accompanied by some degree of lameness, but otherwise, ex cept when they attain a great size, they do not interfere with the action of the animal, or cause any considerable unsoundness. The farriers used to suppose that they contained wind, hence their name wind-galls, and hence the practice of opening them, by which dreadful inflamation was often produced and many a valuable horse destroyed. Note by Mr. Spooner. Numerous dissections of these wind-galls have enabled us to different explanation, from that stated in the text. They appear to be of two kinds, those situated between the suspensory ligaments and the flexor tendon, and which are the most common, and those formed between the suspensory ligaments and the bone in front, in each case immediately above the fetlock joint. The former wind-galls consist in an extension of the investment of the sheath of the flexor perforans formed for it by the perporatus, and the latter a distension of the capsular ligaments of the joint itself. In each a synovial cavity is effected, and consequently the wind-gall cannot be opened without considerable danger .-They rarely occasion lameness unless attended with considerable inflamation or ossification of the neighboring parts, or a solidification of the synovia, (joint oil.) When this is the case the treatment advised in the text should be adopted.

Wind-Galls---Enlarged Bursee.

The bursal capsules located just above the fetlock, as well as in the vicinity of the hock, secrete a synovial fluid corresponding to what some persons term joint oil, the use of which is to facilitate motion. In cases of this character, either the walls of the capsular ligaments are hypertrophied, augumented in bulk, or the synovial secretion is inordinate, or its flow is obstructed Cure—counter irritation, bandage, friction and regular exercise are the best remedies, yet they often fail to remove the eye sore. It is not uncommon for wind-galls entirely to disappear in aged horses.

Grogginess.

The peculiar knuckling of the fetlock-joint, and the tottering of the whole or the fore leg, by the name of Gogginess, and which is so often seen in old and over worked horses, is seldom an affection of either the fetlock or the fastern joints simply. Indeed it is difficult to fix on any particular joint, unless it is that which is deep in the foot, and where the flexor tendon runs over the nervicular bone. It seems oftenest to be a want of power in the ligaments of the joints generally produced by frequent and severe sprains, or by ill judged and cruel exertion. Professor Stewart, very truly says:

"That it is common among all kinds of fast workers and long journeys at a fast pace, will make almost any horse groggy. Bad shoeing and a want of proper stable care will help to increase it. It is one of the evils of excessive work; in the majority of cases it admits of no remedy, except moderation and natural moisture equal to the common atmosphere, applied to the feet and Henderson's Common Sense Foot Form Shoe.

The Pasterns.

Next a consideration of the pasterns will throw more light upon this lamentable prolific subject, and the lamentable diseases of the extremities. The upper pastern bone receives the lower pulley-like the head of the shank-bone, and forms a hinge joint admitting only of bending and extension, but not of side motion. It likewise forms a joint with the sesamoid bones. Its lower head has two rounded protuberances which are received into corresponding depressions in the lower pastern. On either side above the pastern joint, are roughened projections for the attachment of very strong ligaments, both in the capsular ligaments and many cross ligaments which render the joint between the two pasterns sufficiently secure for its natural motion. The lower pastern in connection, is a short, thick bone with its larger head downward. Its upper head has two depressions to receive the protuberances, on the lower head of the upper bone having some resemblance to a pulley, but not so decidedly as the lower head of the shank bone. Its lower head resembles that of the other pastern, and has also two prominences, somewhat resembling a pulley, by which it forms a joint with the coffin-bone and a depression in front corresponding with a projection in the coffin-bone. There are also two slight depressions behind, receiving the eminences of the navicular bone, which bone extends nearly across the foot at the quarters, and thereby produces a peculiar three bone joint, limited in the extent of motion. Neither of these admit of any lateral motion.



TWO VIEWS OF THE NAVICULAR BONE ARE HERE REPRESENTED

The ligaments of this joint, both the capsular and the cross ones, are like those of the pastern joint, exceedingly strong. The tendon of the extensor muscle is inserted into the fore part, both of the upper and lower pastern bones, as well as into the upper part of the heels of the coffin-bone, and at the back of these bones the suspensory ligament is expanded and inserted, while a portion of it goes over the forepart of the upper pastern to reach the extensor tendon. These attachment in front of the bones as seen in the figure, in which (a) represents the lower part of the shank bone; (b) the seamoid bone, (c) the upper pastern, (d) the lower pastern, (e) the coffin bone, (f) are the branches of the suspensory ligaments going to unite with the extensor tendon, (g) the long extensor tandon, (h) ligaments connecting the two pastern bones together, and (i) the lateral cartilages of the foot. Our connection of the foot would not be well connected to the hoof or wall of the defence of the internal portion without a description of the coronet or coronary ring

The crust or wall does not vary much in thickness until near the top, where it rapidly gets thin. It is in a manner scooped or hollowed out; it likewise changes its color and consistence, seems almost like a continuation of the skin, but is easily separated from it by maceration, steeping or soaking in a fluid, or by disease. The upper and thin part is called the coronary ring. It extends around the upper portion of the hoof, and receives within it or covers a thickened or bullious: prolongation of the skin, called the coronary ligament. This prolongation of the skin (it is nothing more,) is thickly supplied with blood-vessels. It is almost a mash of blood-vessels connected together by fibrous texture, and many of them are employed in secreting or forming the crust or wall of the hoof. Hence it is that in sand crack, quittor and other diseases in which strips of the crust are destroyed, it is so long in being renewed or growing down, for it must proceed from the coronary ligament, and so gradually creep down the foot with the natural growth or lengthening of the horn, as in the. human nail, a supply is slowly given to answer to the natural ware and tear of the parts.

The Mechanical Structure of the Base or Wall of the Horses' Foot.

The external covering, the horny box, named crust or wall, that covers the extremities of the horse, the coronary ring and band, the bars, the horny lamina, the sole and horny frog, combine and form the hoof, and act as a defence to the sensitive part within which portion maintains the whole vio-

lent motion of the horse, and is somewhat acorn form shape, presents a plain, flat narrow surface to the ground, ascending obliguely backward, and possessing different degrees of obliquity in different horses. In a sound well formed hoof, the proper degree of obliquity is calculated at forty-five degrees, or the fourth part of a semi-circle. At the front the wall or crust measuring about three inches and a half when the foot stands on a level, the heels scarce one inch and a half stand in a semi-circular direction forward. The crust is composed of numerous horney fibers connected together by an elastic membranous substance, extending from the coronet to the base of the hoof, is adapted as a defence to the sensitive parts within. It is composed of small filaments or hollow tubes, consolidated in such a manner as to preserve their canals distinct. These canals constitute the excrementitious outlets of the hoof, through which mobific or waste matters make their exit, and in them may also be found the vessels by which the horn is secreted. The small vessels arising from the vascular and nervous membrane beneath the hoof, which is considered as a continuation of the true skin, enter also into these canals The small vessel alluded to technically called pappillae, possess the properties of sensibility and conductibility. They are formed from cells and have an allotted function to perform, for which in their healthy state, they are all sufficient, and for which no other class has or can perform without derangement to the parts. The bars are in fact, a continuation of the external portion just described, and they form an acute angle at the lateral extremities of the hoof, which terminate towards the toe, leaving an opening to be filled by the horny frog. They serve to give strength and durability to the hoof, and prevent contraction of the heels. They aid the hoof in protecting the soft and sensitive parts within .-The bars present the same appearances as that of the crust. They are held together by vital affinities, and so long as they

maintain their normal integrity, the foot will preserve its form. Next in order is the sole. It is considered to be more elastic than the crust and is the medium of the sensitive faculty, through which together with its powers of elasticity in the connection with the frog with the bars, the percussion of the foot against the ground is regulated. The horny frog is still more elastic than either of the parts described, and any unnecessary paring on the part of the smith, is to be deprecated. On the internal portion of the combined parts just described, we find a beautiful set of laminae, resembling those found on the under part of a mushroom. Their number is said to be about five hundred, which articulate with a similar number given off from the coffin bone. Each lamina having two sides and an edge, form a series of articulations, numbering about four thousand, the whole presents a surface of four square feet, hence the body of a horse rests upon sixteen square feet of surface within the hoof. The hoof we have already observed, serves as a defence to the sensitive parts within. It varies in size and thickness according to the age and condition, its texture may be rendered hard or soft by ju-dicious treatment, its conformation may be altered for better or worse by proper attention to the laws of animal life, stable management and skillful shoeing, and natural moisture equal to the wild condition.

The Bars---Before Partially Described.

At the back part of the foot the wall of the hoof instead of continuing round and forming a circle, is suddenly bent

in, it represents the base of the crust and its inflections or bending in at the head forms the bars and are in fact a continuation of the crust, turning in by an acute angle, and extend nearly to a point forward of the centre of the circle of the wall and the inside of the bars like the inside of the crust, presents a continuance of the horney leaves, showing that it is a part of the same substance, helping to discharge the same office. The arch which these form on either side of the frog at the quarters, is admirably contrived, both to admit of and to limit to its proper extent the expansion of the foot. When the foot is placed on the ground and the weight of the animal is thrown on the leaver of the inside of the bars, and the force of motion is supported by the frog in connection with the floor and the continuation of the wall, by the expansibility of the leaves of the horn or laminae, then the arches will shorten and widen by the animal motion in order to admit of the expansion of the quarter. The bow returning to its natural curve, and powerfully assisting the foot in regaining its usual form. It can also be conceived that these bars must form a powerful protection to the quarters, a moments inspection will show that if the bars are taken away there will be nothing or less to resist the contraction, or falling in of the quarters, when the foot is exposed to any disease or bad management that would induce it to contract .-Hence the elevation of the frog above action having nothing to rest upon, being elevated above and betwixt the high heeled shoe, thereby elevating the frog, from acting its part, taxing the wall with the whole violent animal motion in the forward direction of 45 degress. The foot suffers in two ways. First: The uneven force thrown upon the wall at the angle of 45 degrees. Second: For the use of the frog having nothing to rest or act upon, to prevent the quarters from driving in by the severe angular force of the motion upon the wall alone, which must be considered at 45 degrees, and the inaction of the frog, offers no resistence to contraction. Contraction is produced, the heels and the quarters are not retained, the mal-form will be produced, diseases and the natural foot will be deranged. The common custom shoeing and stable usages will produce first, contraction of the quarters, second, corns, third, sole bound, fourth, it crowds the internal portion of the hoof, fifth, it produces quarter crack, sixth, it cramps the action of the bones of the coffin-joint, injures the frog by avoiding its use as wise nature designed. It deranges nature, impedes the circulation of the blood and fluid of the feet and limbs, produces in addition to the above so called fever of the feet or founder, sprung-knees, sunker breasts, shrunken or sweenied shoulders, chest founder, rheumatism, &c., &c. Some people seem to suppose that a horses' foots as insensible as a block. Many of our readers have probably had occasion to deplore the present barbarous system of shoeing. Dear bought experience may have taught them a lesson which they are not likely to forget.



Strains---Lameness.

There are the most deceptive class of ailments attributed to the shoulder or foot of the horse, for many such are spoken of in a most confident manner which do not exist in reality whilst others could not possibly happen to the parts indicated by the names they commonly bear.

In order to make myself more generally understood, the cause, back sinews is the vulgar name for the tendon, which the reader will find depicted in a section at the foot of page, and marked (K). It ascends behind the small pastern (I), and large pastern up to the knee bend of the fore leg or the hock

joint of the hind one, respectively. This sinew is again shown where it emerges out of the heel and enters its sheath, to which it is attached in a certain degree, by means of a very fine membrane, adhering from side to side and capable of distention or relaxation. The sheath itself is attached to the two pasterns, of which it thus becomes the tendon or support, whence the back sinew and its sheath or flexor together obtaining the pleural tendon. Within the sheath is secreted a fluid intended for lubricating and defending the parts during the very great action to which they are liable in every effort of progression. As happens in all other secretions, this one sometimes fail to produce enough for the intended purpose, for severe violent action, when the sinews and its sheath adhere together, or at least do not act with freedom. The consequence whereof is lameness in a greater or less degree, which may be temporary only or become permanent, according to circumstances. If the dryness and adhesion be trivial, as happens after hard work and a night's rest, the horse upon getting warm loses the lameness this deficiency has occasioned for the secretion has been thereby renewed, and the lubrication is now supplied in sufficient quantity, but the horse falls lame again next day, probably, and if he cannot be allowed rest its seven to one that he becomes permanently lame. Whenever it so happens that the secretion does not restore to the entire tendons their original motion, it follows that some part is adhesive to another. Inflamation is the consequence, and the horse becomes worse and worse every day he is put to work. The lameness never leaving him altogether; when the adhesion begins extensively, the inflamation and swelling are equally so. The pain is then very great, and the lameness complete and permanent. This de-notes the disorder called strain of the back sinews, In very bad cases or where a slight attack has continued some time, the ligament that passes between the back sinew and

the pastern bone becomes greatly diseased and conducts the inflamation to the foot, affecting alike the sole of the coffinbone and the hoof with heat.

Fever in the foot is that low state of the symptoms that arises from a slight attack which has been neglected. The more violent attacks must come under separate notice.

Cure.

Rest is not indispensable, but moderate labor foment the entire foot with warm water continually, or envelope the foot all over, as high as the inflamation may extend, with cloths saturated with warm water which is to be continued to be wet for days and nights as far as the fetlock. When the heat is greatest at the sole as far up as the coronet, will do by dipping the foot and the surrounding covering frequently into a bucket of warm water. The shoes should be removed and the extreme surplus growth of the horn removed also, so that the frog will take a portion of bearing upon the earth or the foot form shoe herein set forth. After this treatment has reduced the inflamatory symptoms, moderate work may be resumed and continued with a continuation of the wet cloths through the night to keep the parts moist and cool, and that the frog may have a bearing of support, the animal motion of the horse, which will restore the secretion of the foot and limbs in the majority of those disorders of the useful powers of the horses' limbs and feet.

Instead of the cloths for the feet a more effectual benefit may be derived from a shallow box, six inches deep, and sixteen inches wide, and sufficiently long in the stall in front of the horse, that he may be compelled to stand in the water above the hoofs when he is feeding, is a very desirable substitute to supply the natural moisture to the feet, by artifical means, and absolutely bennificial for the healthy condition of the domesticated horse.

Lameness is universally the symptom that denotes disordered limbs and feet. It is the only one perceptible for some time until its continuance throws out some appearance on the surface, and that inquirer who can ascertain its true seat is most likely to find the cause, and to effect a cure. For instance, lameness occasioned, by disordered bones, as in ringbone and bone-spavin, is universally ascribed by the stable man and humble practitioner to strain in the stifle, in the shoulder or the whirl-bone, whereby so much valuable time is lost in applying the proposed remedies at the wrong place, that these two disorders in particular made head almost irredeemably before the true seat of ailment is ascertained. The same species of blunder is propagated when a disease happens to the foot, the shoulder is pointed at and sweeny and chest founder rheumatism, etc., is claimed.

When we reflect upon this strict accordance between the structure of the fore foot and the hind, and then look over and lament the numerous disorders that the first or fore part of the horse is liadle to, whilst the hinder is comparatively free, it gives us reason to pause. But without entering upon an elaborate investigation of this difference as to health, I come to the conclusion that we ought to attribute the disease of the feet, as I have already those of the body, to the excessive weight of the neck, and bulky shoulders, and that of the vascular system, promoted by the great exertion the animal is put to, and the rude concussions the fore feet endure at every step, and supported by the wall alone without the aid of the bars and frog, as nature designed. Thus by the common

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shoe creating friction, heat, and attracting hither many evil humors that may afflict the body or limb or feet generally.

Canker.

Sometimes canker is but an agravated frush. The symp-Sometimes canker is but an agravated frush. The symptoms are those of frush, extended also to the bars of the frog, the heel, the sole, and so is the cure, with this addition, that the paring must be carried on to the extremity, baring all the diseased parts, though these extend over the whole bottom of the foot. Cut away the proud flesh to the quick, and when it has bled a little, apply the common dressings, such as are commonly used, as we have seen that inflamation is the immediate cause of all disorders of this class. And seeing that the irritation which produces this has been brought on by distress of the parts for the want of due pressure on the frog, any one whose eyes are open may see the necessity of paring the extra surplus growth from the strong high heels of the wall down, so that the frog and bars may have nearly an equal bearing with the wall, so that when the horse is walked over field, or turf, or level surfaces, when the horse is walked over field, or turf, or level surfaces, the varied portions of the foot must support the weight equally as nature provided. Hence the necessity of the Foot Form Shoe, for example, for hereby it will be seen, on turning to the brief description I thought proper to give at the beginning of this book, of the Internal Conformation of the foot, that the healthy action of the parts depend upon each other, and is only to be kept up by the action of the sensible frog, share in the motion of the horse, and in a wild 82 CANKER.

or unshod condition always does so. When the frog is not sufficiently pressed upon, says Mr. Coleman, it becomes soft and feeble, from the inaction and supply of the fluid which it naturally secretes in great abundance from the fatty (elastic) substances which lie immediately under the tendon for its healthy support. This view of the process tallies tolerably well with my own experience and examination of

the subject. When the diseases of the foot cannot be traced distinctly to any specific cause, they are fairly attributable to ailment of the whole system dropping into the legs, and fever in the feet. Decidedly so, in may opinion, when both are afflicted. Therefore it was that I noticed this disease along with strain of the tendons, to which I attribute its origin, as much as to other causes of general heat of the feet. Indeed the whole structure of the foot of the horse is so peculiarly curious that it almost deserves a separate study. But we must always keep in mind, whilst considering its ailments, that the great irritation kept up by its extreme action is readily communicable from the one to the other, so that we can not intellibilly separate the leg from the foot. Symptoms may be ascertained, however, by turning the hoof and pressing the cleft, with the thumb, which will give pain and occasion the animal to flinch. Inflamation has already begun at the insertion of the back sinew, in the bottom of the coffin bone, where the branches of the cural artery also enters the bone at the bottom, whereof is the sensible sole, which separates it from the horny sole. See this structure of the foot described.

Rheumatic Fever.

This is one of those disorders in the horse, upon the existence of which doctors disagree. But doubtless the vicisitudes of heat and cold to which the horse is subjected whereby the whole system is checked so as to occasion general fever, is equally likely to check the circulation in one or two limbs only, and the pain the animal would thus labor under, in the performance of its duties, would constitute one of the causes assigned before for simple fever, or founder. Little good, however, would ensue by my considering it separately, so I shall content myself with referring the reader to the head of simple Rheumatism or Grogginess. The circulation of the blood is carried on through all parts of the body and limbs, to which it affords the means of life and health, or being ill performed, is the fruitful source of lingering, obstinate and incurable disease, some whereof almost baffle our skill and care, and while they induce us to admit that the practice of veterinary physic never will reach perfection, yet we are inspired by the hope that by patient investigation, we may at least find out the means of alleviating their evil tendency.

Inflamatory Disorders of the Horse.

From all the information the reader Emay have collected together in his mind, respecting the circulation of the blood, the great heat of his blood, combined with his bulk, and the amazing exertions he is compelled to make, altogether constantly predispose him to incur fever of the whole system, or inflamation of particular parts, accord ing to concurring circumstances. Nor is the matter changed one whit, when we reflect that fever sometimes terminates in local inflamation, which we term critical, as being the crisis and cure of the disorder, and that the inflamation of one part or organ, the liver in particular, frequently developes into fever of the whole animal system, by means of the rapid circulation of the blood through the diseased organs. simply premising that all the disorders incurred by the horse are referable, more or less, to the over heated or inflamatory state of his blood, by the extraordinary exertion of the powers of the limbs and feet upon an unnatural foundation. The wall maintaining the violent exertions and force of the animal action, and its consequent unfitness for the purpose of promoting life, health and vigor. For the more heat, the more viscidity or thickness there will be in the blood, and less will it be found capable of circulating, the unnatural heat continues up to a certain point of the disease. When the animal is so far affected as to lose its appetite, and consequently no fresh blood can be formed by the digestive

powers, the blood then becomes thinner every day, because the more solid particles are constantly being deposited in the cellular membrane, to supply the waste that is unceasingly going on there. But this supply soon fails, as necessarily it must where it is not replenished at the source, and wasting of the solids succeeds of course, unless nature is assisted by our art judiciously. The right application of the art, what we are now in search of, is consistent shoeing and

stable usages.

The immediate consequences of the horse being hard worked, and high fed and physicked with stimulants, the constant heating predispose the blood to a feverish state. Increased action of the heart and the arteries accompany and keep up this state of irritation, which may be further accilerated by the animal being allowed to take cold while in that state, whereby the perspiration is checked of a sudden, and the blood which may then fill the smaller vessels is detained there to the further annoyance of the larger ones. He then contracts inflamation of all the solids and organs of life, or more properly, fever. But when only a certain part of the system or a single organ is thus checked, we consider the affair under the name of inflamation of that part, as of the lungs, the kidneys, &c., always keeping in mind, that, by continuance, these extend their baleful influence to other organs, with which a certain sympathy is known to exist. In like manner, when external muscular parts swell and secrete matter, this is in like manner an inflamation of that particular part, or tumor, or abcess, with a great variety of names, according to the place where it may be seated. Pole-evil and Fistula are among those external complaints to which I allude. More frequently the limbs and feet, as all those disorders in common, together with several others, I have no hesitation in attributing their remote cause to constitutional defectiveness at least, or incapacity in the function of circulation, better known by the homely expression "A bad state of the humor," as before insisted upon principally to the same pre-disposing cause. That species of inflamation of the whole system which we have agreed to term fever, frequently ter-minates by concentrating its latent humors, and depositing the same critically in some fleshy part of the carcass or limbs, or feet, producing matter (or pus) with heat, constitutes the disease, whether absess or tumors supervene. Both have immediate connexion with the blood vessels of no small consideration, though the disorder may have commenced with the finer vessels (capillaries,) and it hath been repeatedly the mer vessels (capinaries,) and it nath been repeatedly proved. All this is agreed upon by those who deny the necessary pre-existence of a general ill state of health, as well as by those who already know, or have yet to learn, that the liver, that acknowledged cleanser, permits much grosser materials to pass through it than those offensive matters, or gross humors, which we contend reside in the blood, and constitute disorder of one kind or other on the surface, or at least predispose the animal to acquire such, according as circumstances may determine one way or the other. Seeing that such gross substances as bits of straw, chaff, &e., as has been said by the wise that these bits have issued from a vein on blood letting, is it too much to concede the ultimate point that the feculent humors, which concede the ultimate point that the feeulent humors, which constitute tumors, farcy, &c., may not in like manner escape into the circulation, and be detained at that particular part which is rendered by some accident less capable of continuing the harmful matter in a fluid state. A blow, a gall, a ligature or bruise are known to occasion this disability by a violent blow, at once bringing on disease in one of its varied shapes, so does a cold produce fever in some animals sooner than in others, according as the circulation may be more languid, or more predisposed to inflamation, or otherwise unfitted for its purposes, whilst some again acquire inflamation without any such accidents or cold, the fever being lighted up occasionally by warm stabling alone, though the air they breathe may be perfectly innoxious.

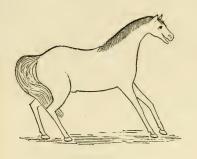
Quittor.

This is a disease of the foot at the coronet, but is so decidedly fistulous that I choose to treat of it in this place, rather than in the space devoted to the foot in general. The studious observer may more readily remember the general observations I thought necessary to prefix to this whole class of diseases.

The cause—a tread which the horse inflicts on itself. This tread or bruise may either be inflicted upon the coronet, or lower down, by over-reaching, or even at the sole, by taking up a stone or other hard substance, also by a prick or blow in shoeing. A quittor is also sometimes occasioned by gravel working upon the top of the shoe betwixt the foot and shoe into an aperture left by an old nail hole, acting upon the sensible laminated substance, separating it from the insensible, leaving a cavity from the aperture quite up to the coronet, where it lays and inflames and produces abcess, which is frequently very difficult and troublesome to cure, and if not early attended to, sinuses form, sometimes reaching to the coffin bone. The blood vessels at the coronet cease to perform their proper functions of secreting new horn, and the boof.

Seeing this curious construction of the foot, we are compelled to allow that numerous accidents may also occur to

prevent the supply of blood to the parts, to say nothing of its unfitness at times to carry on its proper purposes. The two vessels before noticed that bring this supply of new blood descend into the foot, behind the small pastern bone and pass with the back sinew underneath the shuttle bone as may be noticed in the section. Here it enters the coffin bone at the sole, by an indentation of the bone designed for the protection of the vessels passing in and out. From the receptacle in the coffin bone after connection the blood issues forth, part of it to lubricate and nourish the shuttle bone, and its adjacent ligaments, the remainder to effect similar purposes elsewhere, but the greater part is destined to supply the horny material of the hoof.



Chest Founder.

Youatt says on page 152: The muscles of the breast are occasionally the seat of an obscure disease, called by the old farriers anticor, and chest founder. The horse has considerable stiffness in moving, evidently not referable to the feet. There is tenderness about the muscles of the breast, and cocasionally swelling. Youatt says: I believe it to be nothing more than rheumatism produced by improper exposure, sometimes a considerable degree of fever accompanies; but bleeding, physic, a rowel in the chest, warm embrocations

over the parts affected, warm stabling and warm clothing, with an occasional dose of antimonial powders, will soon subdue the complaint.

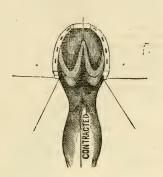
Note by Mr. Spooner: The absorption or diminution of the muscles of the chest alluded to in the text, and which used to be denominated chest founder, is neither more or less than disease in the feet, (the navicular disease in feet,) and which existing in both feet prevents the fore legs being exercised to the same extent as before, and consequently, the muscles from being partially thrown out of use, become to a certain extent absorbed. By the term anticor, we rather understand an abcess in the breast, or brisket, to which some horses are liable. It is a rare disease, and more frequently attacks heavy chested horses; foreign horses are more subject to this disease than English ones.

Information.

I shall presently place before the operative reader a few plain and intelligible precepts, accompanied by some admonitions, for most assuredly that teacher who contents himself with telling the learned what is necessary to be done, has but half performed his duty, if he leaves uncorrected certain long standing errors, which he knows to exist, and to have received the sanction of age, that were confessedly working in the dark, as regards horse shoeing, above all other operations. But the method of performing this operation is avowedly not to be taught in its rudiments upon paper. Practice is alone indispensable, manual labor is requisite, and much of it conducted

by an intelligent mind well versed in books, is necessary towards forming the proficient shoeing smith. Hitherto, however, from the nature of the blacksmith's trade, its laboriousness, and the deficiency of general education down to a late period, most of the operatives in this branch of mechanical labor were precluded from acquiring the additional information that books contain, after they had once adopted their future calling. Error and prejudice had fast hold of our ancestors for centuries, but the prevailing national desire of acquiring the minor school endowments, promises a different result at the present day, and on this occasion, either science has been disrobed of her cloak, and the niceties of art are sought in language that all can comprehend, by a gradual process of experiments and discoveries. In all man's inventions and discoveries, he has invariably commenced with some simple principle, and gradually developed it from one degree of perfection to another. The first hint of the power of controlling electricity was Franklin's bringing it down on the string of his kite. Now it might be said that man has entire control of the subtle element, making it the instrument of transmitting thought from one extremity of the globe to the other, with a rapidity that surpasses time. And the great propelling power that forces the wheels of the steam car over vast continents, and plows the ocean and rivers with thousand of steamers, was first discovered escaping from a tea-kettle. And so the powers of the horse, second only to the power of steam has become known to man only as observation and investigation revealed them.

The general principle of all shoeing is to support the foot off the ground by means of the wall upon the shoe by the crust, so that the frog shall not come in contract with the hard plain road, whilst it may not be allowed to receive pressure from the ground, which is improper and unnatural. It is not so in nature. Lameness usually accompanies the beginning of contraction. It is the invariable attendant of rapid contraction, but it does not always exist when the wearing in is slow or of long standing. A long, thorough, practical experience has taught me to believe that contraction of the hoofs, in the majority of cases, is in consequence of a bad system of shoeing, and stable management. The young and healthy foot before shoeing, approaches nearly to a circle, and of which the quarters form the widest part and the inner quarter wider than the outer, but I am sorry to say this shape is not long preserved in many horses. And why? In the first place, the majority of the smiths as a common practice, are forced by the public sentiment to adopt the popular, time-honored custom, handed down from father to son, to the present century, by the popular force of habit of early taught practice of forging their shoes in a way well calculated to contract the heels of the hoofs at every step, or even on standing still upon the common shoe, and upon the dry stable floors. The common shoes, at the heels and quarters, are forged on a less circle than the crust; at the quarters of the shoe some are straighter and wider betwixt the heels than the heel of the hoof itself. The animals weight is thereby thrown on the wall of the hoof, and comes to the inner edge of the heels or quarters of the shoe, forcing the wall continually together, betwixt the iron heels of this sloping in of the heels, upon an inclined foundation, causes the crust or wall to crowd in at the quarters between the high heel calks. The frog, hanging betwixt, having nothing to rest upon to help sustain the violent angular force of progressive motion, aided by the dry, feverish condition of the common domesticated custom of the stable, contraction is thereby produced.



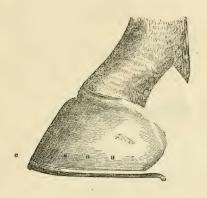
The shoes affixed to the feet of horses by the continental farriers, differ materially from our own and from each other, which proves that no fixed principle is acknowledged by either, though the English and French assimilate together nearest of any, and are those I apprehend acknowledged nearest to perfection, yet imperfect and insufficient to defend

or protect the foot.

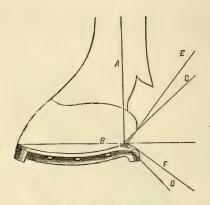
Whoever termed the horse shoe an iron defence, was a happy fellow, in as much as a goodly designed appellation of a description of the thing intended, and tells plainly what a shoe ought to be in reality, if made in accordance with natures requirements, of proper form to protect and support nature, and of proper material. If it proves inadequate to defend the foot from injury, the shoe then becomes the cause

nothing to act upon.

of grievous offence, of pain, heat and contraction of the horn, with its train of evils produced by it. The English shoe form is more freely approved of in this century, and more in common use in America, and is made perfectly flat on both sides. The inner edge being forged thinner than the outer, is designed to defend the wall, and it terminates at the heel where the angle of the crust or wall forms the heels, at the acute angle of the crust or wall. This form shoe, by common consent, maintains the whole violent animal motion, by the base of the wall alone upon the iron form shoe, in contact with the wall. Not upon a level shoe form, but inward upon a concave, or sloping to the centre. The force of the violent motion of the horse's limbs must be considered to come in contact with the foundation of the shoe thus described, at an angle of 45 degrees. The heels of the wall are forced in that direction by the animal motion while the frog is elevated above action, having The first cut in representation is the ordinary position of the foot which restson a supposed artificial defence.



The second cut represents the bearing of the force of motion as it is thrown upon the shoe in contact with the wall or crust of the hoof at right a angle, upon the foot-form surface of the shoe, and the obliquity of the motion of the hoof.



The Sensible Sole.

Between the coffin bone and the horny sole is situated the sensible sole, formed above of a substance of a ligamentous or tendonous nature, and below of a cuticlar or skinlike substance, plentifully supplied with blood vessels. It was placed between the coffin-bone and the sole, by its yielding structure to assist in preventing concussion, and also to form a supply of horn for the sole. It extends beyond the coffin bone, but not at all under the frog, leaving a space for the frog. It proceeds over the bars and is a cover in by some

laminæ to unite with those that have been described, as found in the bars. It is here likewise thicker and more elastic, and by its elasticity is evidently assisting in obviating concussion. It is supplied with nervous fibers and is highly sensible, as the slightest experience in horses will evince.— The lameness which ensues from the pressure of a stone, or of the shoe on the sole, causes inflamation of the sensible sole; corns result from bruises and inflamation of the sensible sole between the crust and the bar. Corns are of four kinds, the old the new, the sappy and the suppurating; they are produced by the heels of the coffin bone, assisted by contraction of the wall of the heel, internal bruises of the sensible sole, the common custom shoeing and stable usages, as passive agents. When they occur in large fleshy feet, the unyielding horny sole, is the passive agent, when they are present in contracted feet, the heel of the coffin-bone in both cases, is the active agent. The wings or posterior of this bone project backward nearly as far as the bars, or immediately over the seat of corns. When the horse is in motion, the coffin-bone can never remain still. It rises, or rather the wings are drawn upwards by the flexor tendon, every time the foot is lifted from the earth and sinks because of the weight which is cast upon it, every time the foot touches the ground, the wings of the coffinbone, alternately bruise the sensitive sole, at every uneven tread, thus in constant action. When the horny sole is weak it often descends upon the shoe, the heels of the coffin-bone, press laterally upon the fleshy sole by the contraction of the wall the parts are bruised by the common time honored form shoes, as has been described and fully set forth.

I shall not so subdivide the head of my treaties on the several diseases, since each will appear under the respective heads of information and subject to the same remedy, and nearly

all may be benefited by the same preventative, or may be re-

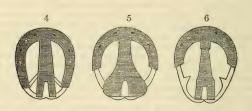
lieved by the same shoeing.

By the common shoe the extreme high heeled calkings maintain the principal violent animal motion by the wall along, upon the high heeled calking which extend by common custom to the extreme outside of the heels and quarters of the wall or crust of the foot, as is the common practice. The leverage of power in maintaining the motion, is far from a perpendicular central motion of the animal, and far from the central support of the motion the weight is maintained, internally, eccentrically and alternately. First by one heel calk, then the other maintains the violent force, as the uneven surface of the hard paved streets may, chance to be. Not so however with the action of the heels of the coffinbone in close connection with the force of the motion thrown on the shuttle bone, which is in continuous extended central combined force with the heels of the coffin-bone coming in contact with the sensible sole, and by the resistance of the eccentric force from the horny bottom or mal-form of the floor of the foot is produced by this common form shoe. By the combined imposed burden force of the wings of the coffin-bone downwards, the horny sole will or cannot yield, and the fleshy or sensitive sole is thereby bruised by the eccentric force between the wings of the coffin-bone and the horny bottom of the floor of the hoof, a corn is thereby established, causes heat, tenderness, lameness and diseases. A deposit of blood whereof inflamation becomes offensive matter is the result from the form of the shoe and custom of shoeing of the present century. The wall at the quarters standing upon the shoe, heels sloping in as a common custom, or even a plain lever bearing for the wall alone to support the angular motion by the heels and quarters above and upon the shoe heel, which must be considered standing upon the shoe in an oblique direction equal with the toe, which is firmly nailed to the shoe, but not so with the quarters. The heels crowd in and forward from the obliquity of the wall

above and upon the shoe at the quarters and heels.

I shall not repeat what is already said, but merely add that distortions, mal-form and undue pressure on the sensible sole occasionsed at an early day or more remote. The irritation which brings on intense inflamation of its edges where the shuttle and the heels of the coffin-bone coming in contact with the sensible sole, the heels of the coffin-bone press upon it at every uneven tread in maintaining the animal motion, and causes undue pressure upon the sensible sole, and the utmost bending that the minutest elasticity of the heel of the hoofs allows of but contraction of the heels, which occasion pain. Hot, brittle and inelastic hoofs prevent its bending duly and truly, and the unnatural lateral pressure upon the quarters follows. The sole being thus unduly penned up, the circulation is obstructed in its passage too and from the cavity of the coffin-bone, heat and fever are produced and the secretions are obstructed, &c. On turning the heel calks down a crippling gate of the horse is frequently produced if the calks be long, especially with heavy horses having low hoofs which may be contracted. This is explained by scientific satisfactory practical tests of many horses by me, both sound, and those of contracted feet. And from a long extensive practical experience of the author of this work, he says the only successive mode that I can conceive of by which a matured old corn, or eight out of ten of the lamenesses can be either cured or palliated permanently, is to take of all surrounding pressure from the diseased parts by the continuous use of the foot form shoe herein described.

I will here give views of three of Prof. Coleman's patent for shoes giving pressure to the frog, which continues in use, tho' in a very limited degree. Mr. Coleman's opinions as to pressure and the diseases consequent upon the absence of it, are embodied in his specification, drawn up to obtain his patent. He may be allowed to speak for himself on this ever interesting subject. He says "The improvement proposed in this patent is to prevent contraction, and to relieve contracted feet contracted frogs, flat soles, sand cracks, corns, canker and quittor, and also to prevent cutting." This principal shoe he says, promotes the secretion of healthy horn. The proper degree of pressure being received by the heel, frog and bars, to afford the necessary expansion to the hoof, the patentee proposed the annexed forms. Observing that no specific form of shoe can be suited to all horses under all circumstances, and to every sort of road. It being necessary to alter the shoes of the same horse at different periods.



Progress of Improvement.

All that is claimed for Prof. Coleman's patent shoe above is claimed in the fullest extent, in Prof. Henderson's Patent Common Sense Foot Form Shoe, as an improvement on all shoes, for all horses, every form of feet and condition of street, or seasons of the year.

Henderson's Common Sense Foot Form Shoe should be forged nearly round, circling in with the hard wall or crust

of the foot at the return portion called the bars, and extending to or underneath the frog. The street side should be convex, or a continuous calking or flange for the street side in conformity with the crust, bars and frog. The extremities or curving in of the shoe heels, at the centre, may be raised as calks and sharpened for ice or frost, but not necessary for summer. Steel may be welded in as usual at the toe, and sharpened. The upper side of this shoe form should be a plain level surface, from near the inside edge. From the last nail hole it should be sloped down out and backwards, equal to the obliquity of the wall above and upon the shoe, to furnish a right angle foundation of support to the motion, and protection to the wall, bars and frog, to maintain each a proportional share of the rapid, violent, animal progression upou the hard paved uneven streets. This Foot Form shoe will furnish a support and protection to natures form foot, not only for a short time, but till the injuries of the sensible parts have lost their tenderness and formed healthy horn, thro' the circulation of the blood and secretion spoken of between the ends of the bones, as a defence against injuries, to enable it to bear pressure. Then continue the same perfect foot form shoe for the protection and support of the frog, bars and wall, as the whole foot would have received support from the earth by the frog in a wild or unshod condition. As a preventative is more valuable than a cure, conditions favorable for health will produce favorable results. Nailing well around the toe, four on the outside, and three on the inside of the wall will give the inner quarter the more liberty of action and prevent contraction.

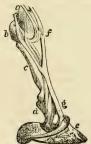
The Coffin-Bone,

And the interior of the foot must now be considered. The

lower pastern, a small portion of which is contained in the horny box, has been already described. Beneath it and altogether inclosed and firmly secured by the laminae in the coffin-toe-bone, the first or proper bone of the foot, the toe bone is fitted to and fills the fore part of the hoof, occupying about half of it. It is of a light and spongy structure and filled with numerous minute foramina, holes or pores.— Through these pass the blood vessel and nerves of the foot, which are necessarily numerous, considering the important and various secretions there carrying on. And the circulation through the foot which could not possibly be kept up if these vessels did not run through the substance of the bone, considering the manner in which this bone is enclosed in the horny box, and yet the important surfaces around and below it that are to be nourished with blood. The circulation which is thus carried on within the very body of the bone is one of the most beautiful provisions of nature that is to be found in the whole frame. Its shape and position within the foot will be seen by inspecting the figure or foot. On the front and sides of the coffin-bone are laminae or leaves, cartilegain our fleshy plates running down between the horny leaves of the crust. The substance which connects these leaves with the coffin-bone is highly elastic and necessarily so, as while the horse is at rest, his whole weight is supported by them. This is proved by experiment. The sole, bars and frog were removed from the foot of a horse, and yet as he stood the cof-fin-bone did not in the slightest degree descend. But when the horse is moving both sets of leaves, those of the coffinbone and the superior portion of the crust, gradually lengthens and suffers the coffin-bone to press on the sole. The sole then descends and in the descending in connection with the frog in contact with the earth, the heels expand and so by an admirable mechanism the violent shock which would be produced by the pressure of such a weight as that of the

horse, and the violence with which it descends is lessened or destroyed and the complicated apparatus of the foot in rapid motion, in a wild or unshod condition, remains uninjured.

A careful observation and practical and continuous use of Prof. Henderson's Improved Perfect Common Sense Foot-Form Shoe, will retain or restore natures form of the horses foot, by the natural animal action, and natural protection and support of the internal and external parts of the foot, by the ordinary use of the frog, in proper proportion to the rapid and violent motion, as wise nature designed. It will also be rendered self-evident, the security which the bars and wall, in connection with the sole and frog, afford to the foot the effectual protection which they give to the lateral portion of the parts of the foot, in connection with the frog and other parts.



The Horny Laminæ or Leaves.

The inside of the crust is covered by thin horny leaves

extending all around it, and reaching from the coronary ring to the toe. They are about five hundred in number, broadest at their base, and terminating in the most delicate expansion of horn. They not a little resemble the inner surface of a mushroom. In front, they run in a direction from the coronet to the toe, and towards the quarters they are more slanting from behind forwards. They correspond as shown with similar certilagious and fleshy leaves on the surface of the coffin-bone, and form a beautiful elastic body of net work by which the whole frame of the horse is supported.

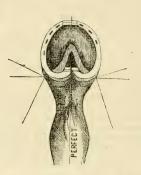
The Sole,

Is under and occupies the greater portion of the concave and elastic surface of the foot, extending from the crust or wall to the bars and frog. It is not so thick as the crust, be-cause, notwithstanding its situation, it does not support so much weight as the crust, and because it was intended to expand in order to prevent concussion By the descent of the bones of the foot, the weight is thrown upon the elastic laminæ. It is not so brittle as the crust and it is more elastic than it. It is thickest at the toe, because the first and principle stress is thrown on that part, and by force of motion the coffin-bone is driven forward at an angle of 45 degrees, and downward in that direction by the animal progression. It is likewise thicker where it unites with the crust, than it is towards the centre, for similar reasons, because there the weight is first and principally thrown. In a state of nature it is to a certain degree hollow. The reason of this is plain. It is intended to descend or yield with the weight of the horse, and by that gradual descent or yielding in connection with the frog, the concussion is most materially lessened. The shock which would result from the sudden, violent action of the weight of the animal in rapid and violent exercise, and this descent can only be given by a hollow. A flat sole already pressing upon the ground, could not be brought lower, nor could the functions of the frog be then discharged, nor would the foot have so secure a hold then, if the sole is arched and hollow because it must descend. The smith should not interfere with this important action .-When the foot will bear it, he should pare out sufficient of the accumulated horn to preserve the proper concavity. Also a portion of the wall at the toe, and cutting deeper towards the centre. He must put on a shoe which shall not prevent the natural descent of the sole, and which not only shall not press upon it, but shall leave sufficient room between it and the sole to admit of this descent. If the sole is pressed upon by the coffin bone during the lengthening of the elastic laminæ, and the shoe will not permit its descent, the sensible part between the coffin bone and the horn will necessarily be bruised, and inflamation and lameness will ensue. It is from this cause that if a stone insinuates itself between the broad deep seated shoe and the sole, it produces so much lameness.

The Sensible Frog.

The coffin bone does not occupy more than one-half of the hoof. The posterior part is filled by a soft mass, partly ligamentous and partly tendinous. Its shape below and under the navicular or shuttle bone, as it is sometimes called, corresponds with the cavity of the horny frog. In front it is attached to the inferior part of the coffin bone, and further back it adheres to the lower part of the cartilages of the heels, where they begin to form the rounded protuberances that constitute the heels of the foot. It occupies the whole of the back part of the foot above the horny frog, and be-

tween the cartilages. Running immediately above the frog and along the greater part of it we find the perforanus flexor tendon, which passes under connecting with the nervicular bone, and is inserted into the bottom of the coffin-bone.



The Cartilages of the Foot.

There is a groove extending along the upper part of the coffin-bone, and on either side, except at the protuberance which receives the extensor tendon, is occupied by cartilage, which like the crust is convex outwards, and concave inwards. It extends to the very posterior part of the foot. Raising about the quarters half an inch or more above the hoof, and diminishing in height forward and backward.—These cartilages occupy a greater portion of the foot than does the coffin-bone, as will be seen in the figure where they are represented, extending far behind the coffin-bone. They

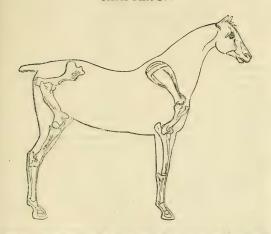
are held in their situation not merely by this groove, but by other connections with the coffin-bone, the nervicular bone and the flexor tendon, and are thus perfectly secureed. Below are other cartilages connected with the under edges of the former, and on either side of the frog. Between these cartilages is the sensible frog, filling up the whole of the space, and answering several important purposes, as will be hereafter described.

The Frog.

In connection with the other important portions of the foot, in the space between the bars and accurately fitting it is the frog. It is a triangular elastic wedge like portion of horn, projecting from the sole almost on a level with the crust, and covering and defending a soft and elastic substance, called the sensible frog. Its shape all are familiar with. It is firmly united to the sole, but is perfectly distinct from it. It is softer and far more elastic. It discharges various duties besides the one above named. It conducts or aids the circulation of the liquids of the internal portion of the foot. By its elasticity action and motion is produced, when it comes in contact with the ground, as in a wild state it always does and prevents the horse from slipping in an unshed condition, especially when the heel comes first to the ground, as in galloping, it assists materially in the expansion of the foot. To discharge these various duties, it must come in contact with the ground, or the herein described shoe. The practice of cutting it away in shoeing or elevating it above acting its part is therefore highly improper. For it will by its yielding substance in the descent of the sole when the weight of horse and his burden are thrown upon it in the putting down of the foot upon the earth or a suitable form shoe pressing

it will then decend likewise and do what nature designed, while the foot will be defended from the wear and bruises and injury that it would receive if it came upon the ground with the first and full shock of the weight of the animal and his burdens. There is a well known fact in mechanics, that the strength of a machine is only that of its weakest part—the strength of a chain that of its weakest link. So with the horse, his valuable powers of usefulness will be from the most defective points. Hence the necessity of continuing to retain the feet and limbs perfect.

CHAPTER IV.



Connecting Remarks between a Correct System of Shoeing and Educating the Horse.

The foregoing is a very humane system of treating the horse, and one that is attended with the best success in subjugating all horses for domestic purposes. And yet there are

other methods by which they may be trained and subjugated, which no less show the superiority of man than the willingness of the horse to obey him, when man's wishes are made known to him. Much has been said of Mr. J. S. Rarey's system of subjugating wild, vicions horses. It is known almost the world over. He taught his system in the United States, Upper and Lower Canada, and has also had the pleasure of operating before the Royal Court in England. As far as our knowledge extends, his system has met the approval of those who have attended his lectures. But after giving him all the praise that is due Mr Rarey's system for subjugating vicious horses it is like all other new inventions that are brought before the public. In a short time there are very great improvements. At present there are several different modes of successful operating. Mr. J. S. Rarey's plan of strapping the foot; Messrs. Rockwell & Hurlbert's whirling until he claim to have an improvement upon the last named by tying a loop in the end of his tail. Taking the tie strap of the halter, pass it through the loop, bring his head to his side and tie fast to the tail. He then with a bow top whip steps behind the horse, cracks him sharply in the quarters and keeps him whirling until he falls Another plan as introduced by Prof. Hamilton, is to procure a piece of rein webbing ten feet in length, attach one end to the ankle of the left forward foot, make fast with a timber hitch, which is made thus: Take the end of the webbing, carry it to the inside of the pastern, bring it around the ankle to the outside, then under the main webbing over the outside, and back of the pastern. Then pass the end under and up through between the ankle and webbing, passing the end through twice, and slipping up close. A knot made after that manner cannot slip or injure the pastern, and will untie without trouble. After the whole web is made fast to the pastern of the left forward foot, the other

end is carried through under the chest, and over the horses' back to the near side. A half inch cord is now tied around the horses' neck, about midway between the head and shoulders, a running loop is then passed through between the neck and cord, carried forward and looped into the mouth .--He now lifts the left forward foot, takes the webbing that is brought over the back to the near side, draws it close, winds the webbing around his right hand and presses the knuckle hard on the left side of the back. With the left hand he reaches to the off side of the horses' neck, grasps the cord that is looped into the mouth, and carries his head against his right shoulder. After moving him upon three legs for a little time, he then throws him upon the left side. All of the above named plans answer well, and may be considered of vast improvement in horse handling. And with the knowledge of all the above improvements, and after a long, careful and practical study of the horse in shoeing and subduing wild vicious horses, I have full confidence I can make this system of controlling, handling and educating the horse, more humane and perfectly clear. If you carefully peruse and practice this work according to its teachings to the horse and owner, than any previous work, but in relating my experience in horse handling, manner of shoeing, and inventions from 1834, to the present time, I do not expeet to make myself very renowned in relating my extensive experience in horsemanship. But trust mainly to rely on the merits of this subject to become useful to those who feel an interest in this important topic. First, the horse is governed, and receives his instructions through the five senses, viz: Seeing, tasting, hearing, smelling and feeling. The one of seeing seem to be rather predominant. But the most of those are more acute than man's, for they partially supply the place of reason in the animal. Secondly: He is governed, like all other animal, by his justinct, which is combined in

the five senses. And one of the qualities of instinct is to fear the approach of man, whom he looks upon as his superior. This is more especially the case when he is in a wild state.— But when this wild fear is changed to love by kind treatment, it is increased a hundred fold. Another of these is to love and obey man, when domesticated and educated, which he generally does, unless his animal propensities are aroused by ill treatment, for it is an undisputed principle in the nature of this animal not to offer resistance to our wishes, when made known to him in a manner that he can understand us. And of course it follows that this must be done in accordance with the laws of his nature. The passion of love, in all animals when cultivated and fully developed, is even stronger than that of fear. Man stands at the head of all created animal beings, for all will tremble and crouch with fear at his approach, except when attacked in a warlike manner, or when there is no chance to flee. Then if man is placed at the head of all these, it shows the importance of his studying his own nature. And if he arrives at the highest state of his moral culture, to which he is attainable, all the better, so as not to abuse the power invested in him, and to enable him to turn all these things to the best and most profitable account. And here is another idea which is worth its weight in gold, viz: His cultivation and improvement have a ten-dency to promote good society, for while cultivating the finer feelings of his nature, as he must, in order to control the horse properly, man arrives at that degree of refinement in his mind which is so necessary for a member of good society to possess. As I stated above, the domesticated horse loves man, and I very much doubt whether there is another creature on the earth that is so universally beloved by man as the horse. He looks upon man as his friend, and when in trouble, in a domesticated state, will run to him for help and protection. What then has man to fear from the

brute creation, when he becomes acquainted with his ability to govern and control them all, and when he sees the most

ferocious beasts flee at his approach.

But to return more directly to the subject in question. I will proceed to show what man should be to accomplish his purpose with the horse, and then by what means he can do The timidity of many persons only prevents their becoming successful horse trainers. It requires almost a reckless courage, a patience that never tires, and a temper that nothing can ruffle. With these requisites, any one may enter the pleasing labor of subjugating and educating the horse, with almost a certainty of success. All men are not endowed with this gift, though any one of common ability, who studies the horse minutely will soon learn by his quick perception and judgment to govern the horse, notwithstanding the great difference in organization and temperament that belongs to this animal, which does not always consist in a uniform plan of operating with all, but must be varied according to their innividual capacities, after subduing their wild fear. This is a study, which if properly perused systematically will be one of the most ennobling, as well as profitable branches of the industry of breeders and the farmers occupation, for it will enhance their horses' value at least onehalf, in some cases, by rendering them more docile and safe to guide and handle. In a word the man should be in every respect, of good disposition, and the law of kindness should be fixed in his mind as the key-stone of all successful theories of treatment towards the horse, and the should look for help only where help is to be found.

Everything is now arranged for the colt to receive his first lesson. And how is it to be accomplished? This may be accomplished by the superior control of man. As we have here set forth to gain the horses' attention, though some individual unacquainted with a correct system of handling wild

and vicious horses, would say the plan I adopt by which to halter and lead quietly wild horses, would so frighten them it would prove a failure, but quite the reverse. Prepare yourwould prove a failure, but quite the reverse. Frepare your-self with a good spring top whip, with long switch. Step into the barn; close the door; now all is safe. You are alone with the colt; nothing to attract his attention but your-self; stand quietly for a few moments, and he will eye you. Take your whip in your right hand, give it a crack; at the same time approach the colt, so the distance from him is the length of whip and give him some sharp cuts around the hind legs and under the flank. Never strike him forward of his quarter. After applying your whip in such a manner for about one minute, then take your whip in such a manner for about one minute, then take your whip in your left hand, at the same time hold out your right hand and gently approach him, saying: "Ho, boy." But in approaching him, if he turns and rans from you, again apply your whip sharply. Then again approach him saying: "Ho, boy." In operating in this manner for about five minutes, he dare not turn his quarters, but will stand and face you, and you can lay your hand upon his neek, pat and caress him. In doing so you gain his canfidance and when he follows you he course for restant. his confidence, and when he follows you he comes for protection, but when he turns to leave you, he is sure that he will get purished. By using your whip in that manner for twenty minutes, he will follow you around the barn the same as a pet dog, keeping his head close by your side.

This exercise was fully illustrated by Mr. Jonathan Smith, of Virginia, which is thus described by S. W. Cole: A vicious mare was given him to tame, which it was said he could not manage unless he delt with the devil. for she was wild, skittish, high tempered, and disposed to kick and bite. He ordered her into a barn, and then entered and fastened the door. Before she had time to survey him, he was giving her the lash smartly. Around she went, kicking and jumping; no rest was given; the sweat flowed, and she slackened

in her movements. When she approached him, he slackened his whip, held out his hand, and said "come along." Again she was off, and the lash applied. This was repeated several times before she would advance, and when she moved towards him, he approached and patted her, and as he moved away and said, "come along." She followed. In a moment she darted off; he applied the lash smartly. She stopped, trembled, and approached him. He patted her neek and said "come along," and she followed him several times around the barn. When she lagged, he was away, and the whip applied. After that, she would not remain two feet from him. He ordered the door to be opened, and the mare followed close to him, through the crowd, and back to the stable, This shows and proves clearly the first step and correct way of forming an acquaintance with wild and vicious horses.

CHAPTER V.

Training and Educating the Horse.

I will now give the theory of Breaking, Educating, Handling, Shoeing and Subduing wild, vicious horses, be their disposition what it may, with a few remarks on their nature and character. The horse, the noblest of animals, man's best friend and most docile servant, has been for centuries misunderstood, and subject to the caprice and ill usage of his master. As a colt, neither his intellect or understanding are appealed to, but cruel force is applied when milder treatment would induce far more beneficial results The methods should be humane and philosophical. Proceeding on the correct hypothesis that he is an intellectual animal, we appeal to his intellect, and having proved to his satisfaction that he is controlled by a master mind and a physical power with which it is useless for him to contend, we proceed to educate him with the same ease that a schoolmaster trains a child in the path of knowledge. The power of memory in the horse is largely developed. His lessons once learned are retained, and he is always thereafter amendable to reason It is only when his master becomes unreasonable, that he will show symptoms of revolt, and a desire to argue the point with him. Once thoroughly educated on such a system, the whip and spur may be dispensed with, for he soon learns to understand what is required of him, and will strain every nerve to accomplish the kindly conveyed behests of his master. Treated with consideration and kindness, his

wants cared for, and his comfort attended to, he becomes the most willing and docile of slaves, the most faithful of servants. This is the true philosophy of Horse Breaking, and the system which I teach.

Getting the Colt from Pasture.

Go to the pasture and walk around the whole herd quietly and at such a distance as not to cause them to scare and run. Then approach them very slowly, and if they raise their heads and seem to be frightened, wait until they become quiet, so as not to make them run before you are close enough to drive them in the direction you wish. When you begin to drive, do not aftourish your arms or halloo, but gently follow them off, leaving the direction free you wish them to take. Thus taking advantage of their ignorance, you will be able to get them in the yard as easily as the hunter drives the quail into his net. For if they have always run in pasture uncared for, as many horses do, there is no reason why they should not be as wild as the birds. The horse in his natural state is as wild as any of the undomesticated animals, though more easily gentled.

We believe that the horse is governed by its animal instincts and nature, and that he has no rational conception of mind or thought. Yet we contend that he can be educated more easily than any animal known to civilization, if taken in conformity with the laws of his nature. I will now give you the three fundamental principles of our theory, those principles being founded in the leading characteristics of the animal. First: That he is so constituted by nature that he will not offer resistance to any demand made of him which he fully compehends, if made consistent with the laws of his nature. Second: That he has no consciousness of his

strength beyond his experience, and can be handled according to our will, without force. Third: That we can in compliance with the laws of his nature-by which he examines all things—takeing objects, however frightful, around or on him, that does not inflict pain, without causing him to fear.

To take these assertions in order: First, then, I will tell

you why the horse is naturally obedient:

The Horse, though possessed of sensitiveness to a greater degree than man, is deficient in reasoning powers; has no knowledge of right or wrong, or will of his own independent of government, and knows of no imposition practiced upon him, however unreasonable those impositions may be, consequently he can come to no conclusion what he should or should not do, because he has not the reasoning powers of man to argue the justice of the thing demanded of him. If he had taken into consideration his superior strength, he would be useless to man as a servant. Give him knowledge in proportion to his strength, and he will demand of us the green fields as his inheritance, where will roam at will, denying the right of servitude to all. But God has wisely formed his nature so that it can be acted upon by the knowledge of man, according to the dictates of his will, and he might well be termed the unconscious and submissive servant. Then we can but come to the conclusion that if the horse is not taken at variance with the laws of his nature, that he will do anything that he comprehends, without making an offer of resistance.

Second: The fact of the horse being unconscious of the amount of his strength, can be proven to the satisfaction of any one who will take the trouble to observe him for a day.

Third: That he will allow any object, however frightful, to come around or over him, that does not inflict pain. We know from a natural course of reasoning that there has never been an effect without a cause, and we argue from this that there can be no action, either animate or inanimate nature, without there first being a cause to produce it. And from this self-evident fact we know there is some cause for every impulse or movement of either mind or matter, and that law governs every action or movement of the animal kingdom.

Then, according to this theory, there must be some caues before fear exists, and if fear exists from the effects of imagination, and not from the infliction of pain, it can be removed by complying with the laws of his nature, by which he examines objects and decides upon their innocence or

harm.

I teach the theory that the horse is a teachable creature, and that his mind can be educated, and when fully and properly taught, it is as durable as life, except the principles taught are forced from his mind by systematic mismanagement, and I believe the horse is much easier taught than man. We claim for our system a superiority over all others, for this reason: That all other general systems that have been introduced, have been both laborious and dangerous to man and beast, while our system is both safe and easy, from the fact of its being a natural one. I further contend and believe that our system of training the horse is the most perfect now known, and challenge the world to confute the principles on which it is based.

Mans Superiority.

Man is superior to the horse because of his intellectual resources, by which he can devise and adopt means to overcome the strength of the horse, or employ it against itself. The secret of training and managing horses lies in man's mental superiority. 'The wisdom of the Deity is infinite, and man must bow before it. Man becomes superior to

ignorant horse only so far as he can manage and impress him with a sense of undoubted superiority. Recognizing the need of conforming to the laws of his nature, so as not to excite his resistance, do not let him comprehend it possible to resist control. Seek in the second place to so disconcert and control him, under all circumstances, as to impress him most forcibly with man's power and absolute supremacy.

Necessity of Kindness and Honesty.

The first step in the accomplishment of this is attained by uniform actions of kindness in his or your management, thus winning his confidence, and he takes man exactly for what he proves himself by his actions, and doubts and fears only as taught by our actions towards him, learning as he does to associate with mans presence a feeling of protection and security. There can be no fear or doubt, because never taught to doubt by deception. Even among men the principle is the same. That man who is always found truthful and who performs exactly what he promises to do, becomes a standard of public confidence and trust, but he who digresses or disregards truth and the principles of honor, becomes an object of suspicion to all who know him, so we are forced to believe that the horse becomes, in the character of his habits, what he is made, in exact proportion to the teaching and example to which he has been subjected.

The Necessity of Intelligent Means.

Prudence in conforming to the laws of the horse's nature, and winning his confidence by kindness, though indispensa-

ble, is only as the caution which guards against the force of a momentum If there is no ability to control, there would be no need of subduing the horse by force had there been no law of his nature violated. Since effects must be the results of causes, every consequence requiring the genius of man to combatand control, must be the result of his own imprudence or ignorance. Harshness and the neglect of this necessary attention, will mainly be the causes of mischief and lead us to infer that the absence of such causes, with corresponding regard for the laws of kindness, is sufficient to win the bad horse to a forgetfulness of his power of resistance. The course of reasoning that teaches him man's ability to enforce his assumed supremacy, must also be demonstrated to his understanding, and man's ability to enforce absolute and unconditional submission under all circumstances of resistance. In fact, to disconcert and beat him on his own ground with the apparent ease and certainty of positive ability, without resorting to harsh means or inflicting pain, for as the aim of the physician is to subdue the force and effect of the disease by using remedies the least aggravating in their action on the system, so the aim of the horsemen should be in enforcing the submission of the horse, to do it, as nearly as possible, on a moral basis.

The Wild Colt.

As the training of the horse must be based upon the observance of those principles of his nature requiring the exercise of his reason in everything forced upon his attention, and of conveying to his understanding most clearly what is required of him, it is advisable to commence our lessons on the management of horse's, by explaining how to proceed with the wild colt. First: Prepare your barn, or such place as

you design for you training room. Everything tending to annoy or excite your colt—hens, hogs or dogs—must be driven out. Endeavor to be alone with your horse; do not suffer the curious, who will be anxious to judge of your ability, as they would term it, to crowd in. Guard against such a nuisance, if possible. And as such persons are usually slow to take a hint, be decisive in your wishes, observing that it is a positive condition of your intructions. Your object next is to get your colt into his place, which you must do as quietly as possible. You can accomplish this best by leading in and hitching in his view a broken horse. The colt will generally soon walk in of his own accord. But if he should not, do not be in a hurry to drive him in. Walk quietly around him and gradually give him less room by closing in upon him. Be slow and careful, and he will not run or become frightened. Give him time to examine and look around, and in a short time he will walk in. When in, remove the old horse as quickly as possible.

How to Halter-Break a Colt.

There are two ways of haltering, either of which will answer. We will give both ways, and the operator may adopt the one best suited to the case. The first is to approach and familiarize yourself to the colt, until he will let you approach readily, and handle him as you please, when the halter may be easily put on. The other method is to get the halter on before you have succeeded in gentling him much. In ordinary cases, the first one will be the most practical. But if the colt is extremely wild and nervous, the latter is preferred, because a much quicker method, and does not excite.

The Second Method.

If your subject is extremely wild and nervous or vicious,

the following method is much the best. First provide yourself with a light pole about ten feet long, cut a notch into one end with your pocket knife, and about seven inches from this end drive a nail in, the head bent a little towards the end having no notch. Next you want a good half inch tea-grass or cotton cord, about fifteen or twenty feet long, with a slip noose in one end, and a knot in the rope, about eventy inches from the noose end, with the noose so that it will not draw so tight as to choke the colt down, but will sillow the noose to draw tight enough to shut off his wind to that extent as to prevent him from making a very obstinate resistance. Now get a short breast strap, or a long hame trap will do; this put into your pocket convenient to the right hand, for future use. Now approach the colt slowly and carefully as before described, remembering that visitors and carefully as before described, remembering that visitors must be excluded. If you are alone you can work faster and better than it is possible with company. When you succeed in approaching to within four or five feet of the withers, retreat slowly as before, and take your stick, previously prepared, holding the notch end from you, swinging it very gently a little to the right and left in a horizontal position. This is a new object of fear to the colt, and will be regarded with a good deal of suspicion.

However, a little patience will soon enable you to get so near the colt that you can hold your stick gently over the back and withers. Then gradually lower it, moving gently as before, till the hair of the mane is gently touched; as this is borne let it drop a little lower until it rests upon the mane. Now commence scratching the mane with the stick, gently, but firmly. This will please the colt and cause him to stand still. While scratching with your stick in this way, slide your right hand slowly and cautiously along its surface until you get to the mane, when you scratch with the hand in place of the stick. All this is proving to the colt that you will not

hurt him, in fact, you please, and hence he submits quietly. Now step back quietly to where your rope is, and take the noose and place it on your stick, letting it rest in the notch and on the nail, with the main part of the noose hanging below the stick, and large enough so as to be slipped over the head easily, while you keep the other end of the rope in the hand with the stick. Your halter or noose now hangs upon your stick, so spread that you can put it over the colts thead without touching a hair. You approach the colt in the same cautious manner as before, until you bring it to the nose. This being a new object of fear to the colt, he will smell of it cautiously, while he is smelling it, you are gradually raising it over his head, so gently, he does not feel or care about it, until you get it well back of the ears, then turn your stick, and your noose will drop on his neck. If he does not start, take up the slack in your rope gently, at the same time approach his withers cautiously, and rub him gently if he will allow it. If he should endeavor to run away, keep hold of your rope. If he tries very hard to get away, he soon finds himself out of wind, caused by the pressure of the rope about the neck, consequently, he will offer but feeble resistance, and will very soon allow you to come up to him just as you please. Now you should use him gently. As soon as he will allow you to approach, loosen the noose from his neck, and by kind words and caresses, let him know you do not wish to hurt him. Keep ou gentling him till he will allow you to rub his neck, head and ears. Encourage him by feeding from your hand something that he likes, when he submits so far as to let you handle his head and neck.

Halter Breaking---Continued.

When your wild, yicious horse or colt is so far subdued,

by the use of the crack of the whip, as previously set forth in the introduction of this work, and follows close by your side, the next stept is to teach him to lead by the process of the Spanish halter. This can be accomplished in ten minutes by the use of a cord, which should be continued in either case in getting the control of the horse. Now take the other end of the rope and tie a round hard knot in the end and another sack knot about twenty or twenty-five inches from the end. Then take the end of the cord in the left hand, and carry it under the neck to the opposite side, while you reach over with the right hand and take it and bring it over the top of the neck again. Now put the knot on the end of the cord, through the slack or loop, and securely draw it up as tight as possible. You have the cord now around the neck. Make a loop by drawing a double from the slack rope, through under the rope around the neck. Make the loop long enough to slip into the colt's mouth, which can be done easily by gently insisting on his confidence. A green colt is not bad about taking anything in its mouth, if you use judgment, and do not frighten. Slip this loop well up above the bridle teeth, and place the lip well over the jaws under rope. Now draw up on your loop, and take the noose you first had about the neck off entirely. Then take hold of the end of the cord, you will find you have a means of power in your hands. And this we call a Spanish halter, and its value in managing and training colts cannot be over estimated, when used with judgment and handled with adroitness and skill. It should never be used so harshly as to excite extreme pain, and yet with a touch that causes a fear of resistance. You now have your Spanish halter and can control the colt almost at will. If he should endeavor to run away from you, give him a quick, sharp jerk, at the same time say "ho," and repeat as often as he may make the attempt to get away. When he stops, go up to him and caress and gen- . tle him about the head and neck, when he gives up to the rope enough so that he does not try to get away, then proceed to teach him to lead. With your rope in hand, step back to his side opposite his hips, and give him a sudden convulsive pull, at the same time say, "come here, sir." Then let your cord hang loose. If he should prance and jump to the opposite side of you, give him another pull, repeating the word, "come here," as before. Do not pull your cord thinking to drag him after you by steady pulling, but give him a few convulsive pulls. After which let your cord slack-en, by the word and the pull. He will swing around towards you, and if he only takes one step in the right direction, let him know that was what you wanted. To make him understand that he has done right, go up to his head, speak kindly to him, call him a good boy, at the same time petting and caressing with the hand. Then walk around on the opposite side and repeat, encourage him for every step taken in the right direction, by caressing and kind words, and in a very short time he will come to you at the word, and follow you around like a pet dog. If he is willful and stubborn, handle him with a Spanish halter, until he will stand quietly. Then take your strap previously provided, in the right hand, holding it by the buckle now; commence raising gently the fore leg next to you. If he resists your efforts, reprove him with the halter, and keep on caressing and rubbing the legitill you can take the foot in your hand. Then slip the strap around below the fetlock, put the end through the loop on the inside of the buckle, draw it up tight, so it will not slip up, then pass the strap around the arm, from the inside of the leg, and bring over to the outside and buckle -By putting him on three legs, he can offer but little resistance when pulled by the head sideways, and as he does not reason, will come around as readily with his legs free, as he will on three. Now step back on a line with the hips, holding the halter firmly, and say, "come here, sir." He of course does not obey. So you pull on the halter and he is obliged to swing round to you. Now step to the other side and repeat. Bring him around by the halter each time, until when he hears the words, "come here," Fe will obey readily. As soon as the colt submits to this, remove the strap from the leg and rub the part gently where strap has been.—Step back and sideways, as before, and say, "come here, sir," If he does not come readily, give him a sharp pull with the rope, which shows him you can handle him as well on four legs as you can on three. If he moves a little to obey, caress him, and so continue until he will follow you readily. And by exercising him in that manner for ten or fifteen minutes, he will very promptly step up to your side, no matter in what direction you may turn. Remove your cord, buckle on your halter, and you can lead him quietly just where you like.

· To Handle the Colt's Feet.

I consider it the duty of every one that raises a colt, to prepare it for the smith before he takes it to the shop to get it shod, or pay the smith or some other competent person, the purchase price of this book, for the valuable instructions to be obtained from it, for many valuable colts have been made almost worthless through this neglect, and there are few horses that may not be gradually rendered manageable for this purpose. By firm management he will soon learn that no harm is meant, and they will not forget their usual habit of obedience; but if the remembrance of corporal punishment is connected with shoeing, they will be more or less fidgety, and sometimes very dangerous both to man and beast. I wish that it was a law in every smith's shop that

no man should be permitted to strike a horse, much less to twitch or gag him, with or without the owners consent. A young horse should never be struck or twitched. The plan that I adopt to handle the feet is very simple, and not less effectual. By adopting this plan, your colt can, in a few moments, be taught to stand perfectly still to be shod. After submitting sufficiently to lead well, caress and rub him on the withers, as at first, and as soon as he will bear it, work down the shoulder and leg; then lift lightly on the foot; if it is submitted, rub it quickly and smoothly a few seconds. then take it down and put it up again, and so continue until you can handle the foot as you please.

Should he however resist and jerk his foot away from you, you must resort to means to make him understand that re-

sistance is out of the question.

Guide for the Shoeing Smith.

In tampering with the colt, you should have your Spanish halter on, as before described. Now take the long rope that you hold in your hand, put it around over the front teeth of the upper jaw and under the lip, carry it around over the top of the head, bringing the end down through the halter loop on the under jaw; now take the end of the rope in your left hand, and proceed as before to handle his legs and teet. If he stands quietly, use him gently; but if he should resist, correct him with your rope or cord, by which you can inflict so severe a punishment that he will submit unconditionally in a very short time, and allow you to handle his legs just as you choose. Persevere until you can hold the foot in your hand, moving it gently in the same way Then let it down and gently caress the leg until he gets over the fear inspired by the use of the cord under the lip, and by its use you can

shoe the worst of the kind without further trouble. In attempting to raise the foot, if the horse should rear or attempt to kick, let go the foot and give him a sudden pull with the cord, then pat him on the neck, saying, "Ho, boy;" then hold the cord in your hand, and with the right pick up his foot, if he does not stand quiet, put his foot down, and give him two or three sudden pulls with the cord. Handle him in that manner ten minutes and he will not dare to move. If more thorough treatment is necessary for confirmed kicking. vicious horses, it is given under the second head of

Vicious, Kicking Horses, Bad to Shoe.

This habit of resistance to being shod or allowing the feet to be handled, is very dangerous both to the smith and horse. If the feet had been handled gently at first, and blacksmiths had not vented so much of their vexation in the way of pounding with the hammer and raspe for every little movement of resistance in shoeing, this habit would never have been contracted. I care not how vicious a horse may be when shoeing him, I think I can make the worst of the kind stand still in ten to twenty minutes, so that the smith will have no further trouble. To shoe a horse that is vicious, put on your Spanish halter, and strap the leg as before described, and chastise with the Spanish halter for five minutes, when he gives up getting his leg free; go up to his head, speak kindly to him, patting and caressing him with the hand. Then let his foot down, and so continue with each leg, straping it up, till he allows you to hold the foot in your hand as you please. If the operator prefers the following method, he may adopt it. for it is more fully convincing.

With your Spanish halter on your horse, as before describe,

take a strong strap or a smooth rope twelve or fifteen feet

long, and tie one end of it in a loop around his neck where the collar rests, pass the other end back between the fore leg, work it well back to the shoulder. You are new standing at the left side of the horse, do not be in a hurry, work handy and carefully, be very uniform in your words and acts. Now take the other end of your strap or rope and bring it through to the left side, lay it over his back; with you right hand under his chest, you can draw it through again to the left side; place the end up into the loop around the neck, you will now find your strap crosses just back of the left fore arm; gently raise the left foot, and lay it into the strap or rope that comes between the legs, the outside strap is wound around the ankle. Now take the end that is passed through the loop around the neck in your right hand, your left holding the horse by the head; you will see that you have the foot with no possible chance to injure himself in the least, as the whole strain comes over the back and around the neck; let him stand with the foot up until he attempts to free the foot, but if you hold him firm, he will soon find it useless, and give up and yield his foot to you; the moment that he yields and not till then release him. You have now fully convinced him that you are not going to hurt him, and that he cannot get his foot from you, you will have no more trouble with that foot. Now try the right foot in the same manner, handle each one thoroughly; remember that it is just as necessary to handle the fore feet as the hind ones, for a horse that is vicious to shoe forward is more dangerous than one that is bad behind, now handle the hind feet. Have the strap around the neck and between the fore legs, as before, and carry it back through the hind legs, around the near hind leg below the fetlock, and bring forward through the loop around the neck. Now step in front of the horse and take a firm hold of the rope or strap, and give a quick pull upon it, which will bring the foot forward. If the horse is

bad pull the foot up and as far forward as you can, which will give you the more advantage. The horse will try to free the foot by kicking probably. Hold the head firmly with the left hand, and with the other hold the strap firmly. Stand right up to the horse's shoulder and whirl him about you, which you can easily do while he struggles to free himself. As soon as he yields, handle the foot gently, and then let up on it a little, and so continue until he will let you handle the foot without resistance. It may be necessary to repeat the lesson once or twice, and be careful to handle the foot with the greatest gentleness. By adopting this plan, your horse can be taught to stand perfectly still to be shod. Smiths in many places have said they would not be deprived of the use of this plan for one hundred dollars, and it will save much time and many accidents to the horse and the operator.

Necessity of Thorough Training.

The horse's confidence and rebellion being usually the result of long experience in successful resistance, his subjugation must be made convincing by repeated proofs of being over-matched, and that resistance is useless. For since his wilfulness and rebellion is based upon the limited reasoning of his experience, he must be thoroughly convinced by experience that unconditional submission is the only alternative, and this you cannot prove to the understanding of the horse without repeating your lessons until he submits unconditionally. But as nursing and care is to the patient over the force of disease, so in the subjugating of the horse, his submission should be encouraged and rewarded by kindness and caressing. That master is supreme in his control, and submission to his commands becomes a pleasure, who has the power to enforce his will, but who exercises it with the sweetening

encouragement of love While force is necessary, and you have the means of making your horse almost a plaything in your hands, let the silken cords of love be the cement that fixes and secures his submission to your will. It is admitted that a good natured, clever man can teach a horse almost anything; and it has become a proverb, that kindness will lead an elephant by a hair. So the horse should be treated with kindness and consideration. His spirit should be curbed and directed, but not subdued. Man has the right of control, restraint, correction, and even destruction of life, but we must bear the consequences of those violations of the laws of his nature to which he is thereby subjected. Show your horse exactly what you want him to do, and endeavor to use the patience and reason in controlling him you would to use the patience and reason in controlling nim you would at least believe necessary for yourself to understand if placed in like circumstances. Ignorant of the language and intentions of a teacher, who even preserved his patience and refrained from abuse, what progress would you make as a pupil, gifted as you are now with all your intelligence? If possible, enoble and elevate your feelings by retrieving your responsibility to yourself, to community, and to the noble animal committed to your charge. Make your horse a friend by kindness and good treatment. Be a kind master and not a tyrant, and make your horse a willing servant and a slave.

Necessity of Familiarizing to Objects of Fear.

As we are taught there are no effects without causes, and as the horse becomes fearless and confident so far as he understands there is no cause for fear, we should remove the cause of mischief as much as possible, by complying with those laws of his nature by which he examines objects, or determines upon their innocence or harm, and this is the

more necessary in his early training, since first impressions are strong in the horse, and once learning suspicion, preseveres tenaciously to apprehension of danger when once excited. Whatever the horse understands to be harmless, he does not fear; consequently great attention should be given to making him examine and smell of such as would be likely to frighten him in after life. A horse will never become satisfied in regard to an object that startles or frightens him by looking at it, but if you will let him approach it slowly and examine it in his own way by smelling it and touching it with his nose, he will very soon become satisfied it is not going to injure him, he will care no more about it, and will never after frighten at it, however frightful it may be in appearance.

To Make a Colt Follow under the Whip.

After he comes around to you readily by pulling a little on the halter, and follows freely, take you whip in the right hand, pull upon the halter a little, saying "come here," at the same time tap lightly with the whip over the hips. He will yield to you mainly because you have taught him to yield to a slight pull upon the head, and to come to you at this signal, and because he wishes to get away from the touch of the whip behind. As soon as he comes to you, caress him and feed him something that he likes from your hand. Repeat this until he comes to you as readily by tapping with the whip as he did at first by the halter. Now, instead of hitting with the whip, commence by snapping it behind him. If he comes caress and encourage him as before, and so repeat at each time, increasing the distance from him until he will follow or come to you readily by cracking the whip. We give this method because it is simple, and in our judgment practical to most any one, and will bring the desired

result in a short time; indeed so well as to make your horse follow you around the streets without halter or bridle, by the motion of the whip.

To Teach the Colt to Back.

Put on the Spanish halter, stand directly in front of your horse, having hold of the cord about twenty inches from the head with your left hand, resting your right on the cord six or seven inches from the head. You now say "back sir." Your horse does not know anything about what you want, of course, and does not obey. Immediately after saying back, press down and back with your right hand sharply on the cord, which will set the head back with a jerk. Do not expect your colt to back without a struggle of resistance. Repeat this four or five times, being careful not to get excited. As a rule the colt will not go back with one lesson, probably not with the second, but will be sure to do so at the third lesson. The more intelligent and spirited the colt, the sooner he will submit, and the more ready his obedience. The duller and slower your subject the more patient and persevering must be your efforts. It is now time to commence bitting your colt.

Bitting the Colt.

Some people seem to have strange notions. It would seem as if the style and position of the head depended entirely upon the attention given to bitting. The object of bitting, it should be borne in mind, is to teach the horse to obey the rein, and at the same time, habituate the horse to give the head and neck as high an elevation as the form and

temper of the animal will bear. But while it is admitted that careful attention to bitting will improve the style and bearing of the horse, it should not be forgotten that the position in which the horse carries his head in harness will depend almost entirely upon his form and temper. No art can give the horse with a low, perpendicular shoulder and short neck, a fine style of carrying his head and neck, even if he possesses good courage and spirit. The common practice of straining the head and neck into an unnatural position, and keeping it so for hours, as is practised generally in bltting, is often a cause of injury. When the head is strained up into an unnatural position, and kept there for a long time, the colt will learn to relieve the pain and weariness he feels by resting the entire weight of his head upon the bit, and which teaches him to lay upon the bit, and causes the mouth to become insensible to pressure.

We will explain what we regard as an improved method of bitting, which teaches the horse exactly what you require and does not injure the mouth in the least, and by which you can bit a horse well in about one hour, by limiting your lessons to five minutes and repeating until the head is rendered freely and readily to the purpose of the rein, seldom requiring more than six or eight lessons of five minutes each.

How to Make a Bitting Bridle.

Take your Spanish halter, made exactly as before described, with the exception of the loop that goes around the neck. They should be made large enough to fit over the neck rather tightly where the collar is worn. Now bring your cord through the mouth from the off side, and bring back on the near side through the loop around the neck; pull on the cord, and the head will be drawn back to the breast.

You are now prepared to bit. Simply pull upon the cord a little, which will draw the head back slightly; after holding for a short time, render loose; then draw a little tighter, and so repeat for four or five minutes, then stop bitting, and repeat at some future time.

peat at some future time.

The great secret, not only in bitting, but of training the young horse in any manner, is in not confusing or exciting him to resistance by training too long. When your colt yields readily to the bit, you can check the head to suit. Making the check rein rather tight causes the head to be carried high, while the delicacy given the mouth will prevent the nose being thrown forward. This method of bitting may be regarded with little favor by those not understanding its effects. But all we have further to say on the subject is give it a fair trial; teach your colt to be perfectly submissive to your handling in every manner, to lead well, back freely at the word, you are now ready for the next step in his training, which is usually driving in harness or

How to Saddle a Colt.

Any one man who has this theory can put a saddle on the wildest colt that ever grew without any help, and without searing him. The first thing will be to tie each stirrup strap into a loose knot to make them short, and prevent the stirups from flying about and hitting him. Then double up the skirts and take the saddle under your right arm, so as not to frighten him when you approach. When you get to him rub him gently a few times with your hand, and then raise the saddle very slowly until he can see it, and smell it with his nose. Then let the skirts loose, and rub very gently against his neck the way his hair lays, letting him hear the rattle of the skirts as he feels them against him, each time

getting a little farther backwards, and finally slip it over his shoulders on his back. Shake it a little with your hand, and in less than five minutes you can rattle it over his back as much as you please, and pu'l it off and throw it on again without his paying much attention to it.

As soon as you have accustomed him to the saddle, fasten the girth, but be careful how you do this. It often frightens a colt when he feels the girth binding him, and making the saddle fit tight on him. You should bring up the girth very gently, and not draw it too tight at first, just enough to hold the saddle on, move him a little, and then girth it up as

you please and he will not mind it.

You should see that the pad of your saddle is all right before you put it on, and that there is nothing to hurt him, or feel unpleasant to his back. It should not have any loose straps on the back part of it to flap about and scare him, After you have saddled him in this way, take a switch in your right hand to tap him up with, and walk about in the your right hand to tap him up with, and walk about in the stable a few times with you right hand on the saddle, taking hold of the rein on each side of his neck with your right and left hands. Thus marching him about in the stable will you learn him the use of the bridle, and can turn him about in every direction, and stop him by a gentle pull. Always caress and loosen the reins a little every time you stop him. You should always be alone, and have your colt in some tight stable or shed the first time you ride him. The loft should be high, so that you can sit on his back without endangering your head. You can learn him more in two hours time in a stable of this kind, than you could in two weeks in the common way of breaking colt, out in an open place. If you follow my course of treatment, you need not run any risk, or have any trouble in riding the worst kind of a horse. You take a step at a time, until you get up a mutual confidence and trust between yourself and horse. First learn him to

lead and stand hitched; next acquaint him with the saddle, and the use of the bit; and then all that remains is to get on him without searcing him, and you can ride him as well as any horse. First gentle him well on both sides about the saddle, and all over until he will stand without holding, and be not afraid to see you anywhere about him.

As soon as you have him thus gentled, get a small block about one foot or eighteen inches in height, and set it down by the side of him, about where you want to stand to mount him. Step up on this, raising yourself very gently, horses notice every change of position very closely, and if you were to step up suddenly on the block, it would be very apt to scare him; but by raising yourself gradually on it, he will see you, without being frightened, in a position very near the same as when you were on his back. As soon as he will bear this without alarm, untie the stirrup strap next to you, the same as when you were on his back. As soon as he will bear this without alarm, untie the stirrup, strap next to you, and put your left foot into the stirrup, and stand square over it, holding your knee against the horse, and your toe out so as not to touch him under the shoulder with the toe of your boot. Place your right hand on the front of the saddle and on the opposite side of you, taking hold of a portion of the mane and the reins, as they then hang loosely over his neck, with your left hand. Then gradually bear your weight on the stirrup and on your right hand, until the horse feels the whole weight upon the saddle. Repeat this several times each time raising yourself a little higher from the block, until he will allow you to raise your leg over his croop, and place yourself in the saddle. There are three great advantages in having a block to mount from First, a sudden change of position is very apt to frighten a young horse that has never been handled; he will allow you to walk up to him, and stand by his side, without scareing at you, because you have gentled him to that position, but if you get down on your hands and knees and crawl towards him, he will be very much frightened. And upon the same principle he would frighten at your new position if you had the power to hold yourself over his back without touching him. Then the first great advantage of the block, is to gradually gentle him to that new position in which he will see you when you ride him. Secondly, by the process of leaning your weight in the stirrups, and on your hand, you can gradually accusin the stirrups, and on your hand, you can gradually accustom him to your weight, so as not to frighten him by having him feel it all at once. And in the third place the block elevates you so that you will not have to make a spring in order to get on the horse's back, but from it you can gradually raise yourself into the saddle. When you take these precautions, there is no horse so wild but that you can mount him without making him jump. I have tried it on the worst horses that could be found, and have never failed in any case. When mounting, your horse should always stand without being held. A horse is never well broke when he has to be held with a tight rain when mounting and a celt has to be held with a tight rein when mounting, and a colt is never so safe to mount, as when you see that assurance of confidence and absence of fear, which causes him to stand without holding.

How to Ride the Colt.

When you want to start do not touch him on the side with your heel, or do anything to frighten him to make him jump, but speak to him kindly, and if he does not start, pull him a little to the left until he starts, and then let him walk off slowly with the reins loose. Walk him around in the stable a few times, until he gets used to the bit, and you can turn him about in every direction, and stop him as you please. It would be well to get on and off a good many times, until he gets perfectly used to it before you take him out of the stable. After you have trained him in this way, which should not

take more than one or two hours, you can ride him anywhere you choose, without ever having him jump or make any effort to throw you.

When you first take him out of the stable, be very gentle with him, as he will feel a little more at liberty to jump or ruu, and be a little easier frightened than he was in the stable. But after handling him so much in the stable, he will be pretty well broke, and you will be abie to manage him without trouble or danger. When you first mount him, take a little the shortest hold on the left rein, so that if anything frightens him you can prevent him jumping from you by pulling his head around to you. This operation of pulling a horse's head around against his side, will prevent any horse from jumping ahead, rearing up or running away. If he is stuborn and will not go, you can make him move by pulling his head around to one side, when whipping would have no effect; and turning him around a few times will make him dizzy, and then by letting him have his head straight, and giving him a little touch with the whip behind, he will go along without any trouble.

Never use martingales on a colt when you first ride him. Every movement of the hand should go right to the bit in the direction in which it is applied to the reins. Without a martingale to change the direction of the force applied, you can guide the colt much better without them. Besides martingales would prevent you from pulling his head around if he should try to jump. After your colt has been rode until he is gentle and well accustomed to the bit, you may find it an advantage, if he carries his head too high, or his nose too far out, to put martingales on him You should be careful not to ride your colt so far at first as to heat, worry or tire him. Get off as soon as you see that he is a little fatigued, gentle him and let him rest. This will make

him kind to you and prevent him from getting stubborn or mad.

Training to Harness.

Put on your harness carefully, which should be made to fit well, and great care should be used in having it safe and strong in every respect. Do not be tempted to drive your colt in an old, rotten harness, or hitch to an old, rotten, rattling wagon, as such are liable to give way at any time. Many of the accidents causing horses to become subject to bad habits, are the results of such imprudence. Let every step be made sure. Work safe, and you are sure to bring about a good result. With your harness on, allow him to stand in his stell putil he because somewhet need to the stand in his stall until he becomes somewhat used to the pressure and presence of the different parts, and will allow you to rattle them about without his careing for them. Now lead him around for a short time, and as soon as he appears quiet, check him up loosely, and take down the reins, and when familiar with the harness, check and reins, and will stop and start the word, and drive around to the right or left, you can drive him about the streets with safety. Though in making this step you had better have your Spanish halter on or a pair of them for each end of your cord, for safety. You should then drive to sulky. We prefer a sulky at first. Let your colt see and examine every part of the sulky, until he cares nothing about it. Then draw it up behind him, rattling and running it back and forth a few times; then attach the harness. Before starting him, back him up against the cross bar of the shafles. If he should get frightened, speak to him calmly but firmly, at the same time holding your reins firmly, so as to prevent him from swinging around if he should try. Then go to him, and rub and caress him until he gets over his excitement; then run the sulky up against his haunches, at the same time soothing him by gentle words until you can shove the sulky against him just as you please, and he not care anything about it. Now you can get into your seat, and drive him around wherever you choose without danger. Let him go slow at first until he gets familiarized with the objects that are new to him along the road, as he is not so liable to become frightened while going slow as when fast driven.

Objects of Fear.

In driving, be careful not to use the whip too freely. If a stone, or a stump, or anything of the kind, should be re-garded with fear by the colt, do not whip and drive the horse by, but let him stand a short time and look at the obhorse by, but let him stand a short time and look at the object until he seems carless about it; then push a little closer, and so repeat, at the same time talking to him encouragingly, until you can drive him up to the object. Be very sure to have your colt comprehend fully that such objects are harmless, as opportunity offers in this way, and he will soon become so fearless and confident, as to be regardless of such things. But if you whip him for becoming frightened at such things, he will associate the punishment with the object of his friight, and be more friightened the next time he sees it. it. The horse being unable to reason only from his experi-ence, you should convince him by careful examination that ence, you should convince him by careful examination that the object is harmless. For example, if the sight or smell of a robe a few feet distant should frighten him, put on your Spanish halter, and take him alone into your training yard or barn, lead him gently to the robe, let him smell of it if he will, then take it in your hands, hold it gently to his nose, then rub it against his neek, side, and over his back, and so repeat for a short time, and he will become so regardless of it in a short time, after being familiarized to it in this way, that you can throw it over his back, or tie it to his tail, without causing him the least fear. To familiarize a colt to a drum, the same principle is to be observed. Let him touch it with his nose, then rub it against his neck and side, then place it on his back, now tap it gently with your fingers, gradually increasing as he will bear it, and in a short time you can play upon it quite smartly, even while resting on his back, and he will care nothing about it. The same with the umbrella. Let him touch it with his nose first while closed, then rub it over his head neck and body, then commence at the head again, open the umbrella a little right under his nose, and thus accustom him to it until you can hold it, fully spread, over his head, and over and about him in any manuer; and in a short time he will not mind it. Teach him that a newspaper, though it is white and rustles, is harmless, by rubbing him with it, throwing it upon him like a blanket, dragging it about on the ground, and riding him about with it in your hand.

To accustom your horse to the cars, lead him to the depot and have him see them at rest, and examine them carefully, even to smelling and touching with his nose. Then allow him to see them move, as you have an opportunity. When you undertake to familiarize a colt or a horse to anything that frightens him, be sure and repeat your lessons until he cares nothing about the object; if you do not, the experiment will be little advantage to your horse, in fact, it may

render him worse.

Driving.

When your horse drives well before a sulky, then you may hitch him to light wagon, or by the side of a broke horse, and if you are breaking him for a farm or for hauling heavy loads, you can gradually increase his load until he will

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draw to the extent of his ability without comprehending that he has the power to do otherwise. After your horse is sufficiently broke to the harness, you can rather allow him to carry his head as nature may dictate, or by the proper use of the check rein, bring his head and neck into such position of style as his form and and temper will bear, or your fancy dictate. In teaching the horse to drive well, do not be in a hurry to see how fast he can trot. Although your colt may nurry to see now last he can trot. Although your colt may be old enough to learn how to move well, and perhaps drive as gently as an older horse, he is not old enough to perform the work of an older horse fully matured. As he develops in strength and hardens in his gait, care should be taken to keep each pace clear and distinct from each other. While walking he should be made to walk, and not allowed to trot; while trotting as in walking, care should be taken that he keeps steadily at his pace, and not allowed to slack into a walk. When occassionally pushed to his extreme speed in the trot, he should be kept up to it only for a few minutes at a time, gradually requiring more as he becomes practised and capable of endurance; and whenever he has done well he should be permitted to walk a short time, and encouraged by a kind word. Under no circumstances should what is termed "his bottom" be tried and overdone The reins in driving should be kept snug, and when pushing him to the top of his speed, keep him well in hand, that he may learn to bear well on the bit, as it is by means of the reins mainly, that the horse when going at a high rate of speed is kept steady in his place. But while you should teach your horse to drive well on the bit, be careful not to give him the habit of pulling too hard; for then he becomes not only unpleasant, but difficult to manage. The art of driving well cannot be taught by any written instructions. Practice and ingenuity in this respect, can alone make a skillful horsemen. Always strive to encourage, not drive your horse, and be

careful not to whip only for merited reproff. The too frequent use of the whip will cause the horse to plunge ahead every time he sees any unusual movement of it, or at any mishap that may occur.

To Train a Horse to Stand when Getting into a Carriage.

There are many horses that are very gentle after starting, but will not stand for you to get into the carriage. Such will sometimes rear up and start very suddenly, or stopped, become obstinate and stubborn, and refuse to go if when required. This habit is usually brought about by the mismanagement of thoughtless or ignorant drivers, in being hasty and harsh to a horse naturally ambitious, but sensitive hasty and harsh to a horse naturally ambitious, but sensitive and impulsive. The naturally intelligent and tractable colt is taken from the field and harnessed up without attention or regard to consequence. If he goes off gently, he is regarded as mild and gentle; but if he is restless, and does not go when required, he is whipped, kicked and abused. The colt does not know what he is whipped for, and the result is he becomes stubborn or mad; if he goes, it is with a reckless, rearing plunge, or he settles back and refuses to move. Such a horse learns either good or bad habits very readily, and is either very good and obedient, if well managed, or willful and stuborn to the last degree, if to the contrary. The first step in the management of such a horse, if a hed one is to and student to the last degree, it to the contrary. The first step in the management of such a horse, if a bad one, is to show him that his willfulness must yield to superior power. This you can best do by managing him as follows: Tie the hair of his tail together into a hard knot, then take the halter strap in your left hand, holding the tail in your right; pass the halter strap through the hair above the knot, and draw up as short as the horse will allow without running around,

tying quickly. This will bring the horse in the shape of a half circle, his head fast to his tail by the halter strap. Your object is to break up his confidence in himself most thoroughly, and this is the most harmless, yet most powerful, of all means known, to disconcert a horse on so practical a basis. No horse can long bear up against the depressing influence of whirling, in connection with the proper use of the Spanish halter. The nearer the head is tied to the tail the betrer, for the quicker and shorter the horse will turn, and the better the effect. Should he not run around very freely, touch him behind with the whip, which will cause him to move sharply. Simply keep him moving till he falls down by becoming dizzy, which he will do in from one to two minutes. After lying a short time, untie the halter, when he will get np rather shaken in confidence. But one lesson is not sufficient if a bad case. Tie the head in an opposite direction, and put him through until he folls or is unable to move. By this time a "plucky" horse may become so warm by his exertions and struggles that he is not in a condition to handle to advantage. If not to warm, however, put on your Spanish halter, and give him a few sharp turns to show him that you can handle him as well by the head as you can by whirling. When he follows and submits in this way freely, put him in his stall, caressing and talking to him gently, so as to let him understand obedience is all you require, and that you are his friend.

The great secret of subduing the horse is to handle him in such a manner as to impress him most powerfully with your supremacy, without causing pain or excitement. This you can accomplish best by making your lessons short, and repeating after the horse has time to reflect. A man does not like to match himself against an adversary who has handled him roughly, and with apparent ease of superior strength and ability, after his mind becomes cool and the ascendancy of

reason prevails; and so with the horse. It possible, do not continue his training while excited, and you will be surprised to find how soon he will yield submissive. When prised to find now soon he will yield submissive. When you repeat, let it be with the halter only. When you find your horse will yield a ready obedience out of harness, then put on your harness and hitch to carriage. When hitched, go to the head of the horse, pat and rub him on the head and neck, oblige him to stand, for he will not run over you; then walk ahead slowly, stopping occassionally to caress and encourage him, and in a short time you will find your horse will state on the former to get in the head. will stand quietly for you to get into the buggy. For a few times after hitching, do not attempt to get into the buggy immediately before starting. Walk ahead, ask him to follow a short distance, and if he shows a desire to crowd on you too fast, set him back with the Spanish halter. We have broken very bad horses of this stamp in four or five lessons by the halter alone; but the above method is more thorough. Always move you horse slow for some distance after hitching, and be very careful about using the weip at such times.

Balky Horses,

This habit is more perplexing to endure than any other the horsemen has to overcome. The balky horse is usually high spirited, fierce in temperment, quick to comprehend, and sensitive to causes of excitement. Kindness, good management and patience would at first have won him to a forgetfulness of the habit, but as an open and confirmed rebel, defying the powers of man to enforce submission, requires more than the patience incident to human nature to overcome. The balky horse is simply willful, and in breaking up the habit, the object would be to convince him clearly without resorting to abuse or harshness, of your ability to

enforce submission. We would here suggest that "an ounce of preventation is worth a pound of cure." in this as in all other bad habits to which the horse is subject. Bad management is alone the cause of horses learning to balk. When the young horse balks in harness, it is not from any unwillingness to go, but from some confusion or excitement arising from mismanagement, He is willing and anxious to go, perhaps, but too fast or too high spirited to make the steady push against the collar, necessary to move the load. Because he will not pull under such circumstances, he receives the curses and lash of the driver, which not only makes him mad, but discourages him and he refuses to go. If your had, but discourages him and he refuses to go. If your horse becomes confused and refuses to go ahead, do not, by any means, get mad and resort to the use of the whip the first thing; for in such a case, ninety-nine times in a hundred the use of the whip will only strengthen the tendency to resistance into open rebellion, which is just what you do not want. As a general rule, a little patience and a few encouraging words, will cause your horse to move on. But if your horse shows a decided tendency to resistance, get out and examine the harness carefully; sometimes the collar is too large and hurts the shoulders, or perhaps the load is heavy, and you have forced your horse to draw until completely exhausted, and simply needs time to breathe before renewing the exertion Consider the circumstances: Your horse cannot talk and tell you the cause of the difficulty. Go to his head, and talk to him gently, and rub him a little. After rubbing the head and neck, for a horse of this kind must be flatterde and coaxed, as you would find it necessary to do with a stubborn child. All he needs is a little time, and the fit will exhaust itself, and you will have no bad impression in making a starting point for this habit. Gently move the horses head to the right and left to show him that he can move the load. After moving once or twice in this way, he

will generally start and move on. After your subject moves well and safely, gradually teach him to draw steadily.

Kicking in Harness.

Kicking may justly be regarded as a bad habit, because of the danger incident to the use of such horses. It is well to remember that this habit is in most cases the results of carelessness or mismanagement. Proper attention is not given to the fitting of the harness, the straps dangle about the flanks of the colt, unacquainted with their nature, which frightens and causes him to kick, or what is more common, an old harness is used and breaks at some unlucky moment, which frightens the colt. and he kicks as a means of self-defense, when his feet and legs coming in contact with the whifiltree or cross piece, causes him greater fright, and he becomes reckless, springs ahead in a frantic endeavor to free himself from his tormentor, until he tears himself loose, or is stopped after being worried out with fright and exertion. Learning fear and resistance in this way, he becomes alarmed at the least indication of its repetition. This fear must be broken by familiarizing the horse with the causes of fear, at

broken by familiarizing the norse with the causes of fear, at a time when he is powerless to resist. And when he finds there is no danger of harm, he will cease resistance. In the majority of cases this habit is broken by our means of control. To break the kicking, vicious horse, you want to put him through a regular course of handling that will convince him of your ability to manage him just as you please, while at the same time you demonstrate to his understanding that he candot help himself, and must submit unconditionally to your control in the first place, then give him a turn with the Spanish halter, making him stop at the word whoa, and come to you at the word. When he submits to that, proceed still

fureher in convincing him of your power and mastery by throwing him down. To do this, fasten up the fore leg as described in "handling the feet." Now put a strong surcinge, with a ring slipped on it, arcund the animal, and slip the ring to the right side of the horse, near the back bone; draw the end of your cord or Spanish halter through the ring, bringing it over to the near side of the animal: take the halter out of the mouth, thus leaving a plain loop arcund the horse's neck; then take hold of your cord with the left hand and straighten it out; now you have a plain double from the neck of the horse around to the ring on the right side; you put this into the horse's mouth and draw up the end of the cord with the right hand. Now you have him completly in your power, you can handle him as easily as a boy would a top. Now step back by his side with the cord grasped firmly in your hand, saying "lie down, sir," at the same time pulling steadily on the rope. His foot being fastened up he is easily thrown off his balance. He will gradually settle down on the knee of the near leg, when a quick pull will bring him over on his side. Now you have him down, use him gently, rub his head and neck, talk to him kindly, thus letting him know that your object is not to hurt him, that all you require is submission, and that you possess the ability to enforce that. After letting him lie for a while, make him get upon three legs, let him stand a moment the real test for possess the ability to enforce that. After letting him he for a while, make him get upon three legs, let him stand a moment, then put him down again, while down handle his feet as you please, and so continue until he will lie still and submit to you in every thing you wish. Then take the strap off his leg and let him get up, caress and rub his leg where the strap has been; now put the harness on; use a blindbridle with a W bit, (or some call it a double jointed bit,) and if you cannot obtain one at your harness makers, get a blacksmith and have one made. With this kind of a bit on your horse, you want to drive him around your yard, oc-

cassionally saying, ho, at the same time sitting him back upon his haunches with the bit. In a very short time he will stop when you say ho, without any pull on the rein; then go up to him and caress him about the head and neck; then take your whip and switch him around the hind legs and flanks, light, and if he shows a disposition to kick or run; say ho sharply, at the same time correct with the bit. In your first lesson, use the bit with severity, thus demonstrating to the horse your determination and ability to enforce obedience under any and all circumstances of resistance. When you under any and all circumstances of resistance. When you can drive him around with a whip at a trot, and stop him at the word without using the reins, go to him and pat and rub him to encourage him in well doing. Then attach a long cord to your reins, start him away from you at a trot, letting him go as far as the length of your cord will permit without pulling on the bit, when you will say ho. If he stops, go up and caress him, and keep on in that way until he will stop up and caress him, and keep on in that way until he will stop and start at the word, no matter how far away he is, so long as he can hear your voice. After you have him so well in hand that he obeys readily and willingly, take the reins in your hand and teach him to back, encouraging him by kindness when he does right, and correcting with the bit when he shows the least intimation to be rebellious and stubwhen he shows the least intimation to be received a stub-born. When he will back at the word, back him against your buggy wheels; do not force him against it at first, but drive him around and up to it, letting him smell and examine it until he becomes satisfied it is not going to hurt him, then back him up to it again—right back against it—and if he is disposed to kick, say ho sharply, at the same time keeping an eye on his movements, and if he shows fear and a disposition to get away from it, give him a short, quick jerk with the rein and repeat the word ho. By this treatment he finds that you still have the same power in your hands which has already controlled him so completely and easily: thorefore he submits unconditionally. You can now proceed to hitch him; watch him closely, and if anything should excite him momentarily, and he should manifest a desire to repeat his old habit, say ho, and if he does not obey instantly, seat him back with the bit in a manner that shall leave ne doubt of your ability to control him at will. If handled in this way for a few times, he becomes convinced of the uselessness of resistance, and careful management for two or three weeks, will radically break the worst horse of this kind we ever saw.

People have often expressed wonder at our success in managing kicking and runaway horses. The simple laws of nature are to such unworthy of reflection, except the submission of the animal. The control of the animal is looked upon as a peculir gift. But we do control them perfectly and thoroughly by the word ho. In breaking to the word, we use means that compel obedience. If your horse minds the word quickly, and stops at your bidding, he is not going to do you or himself any damage by kicking; for if you stop him whenever the old habit is brought to mind, and let him stand until the excitement is over, he will have no incentive for kicking, in a short time will forget the habit altogether.

The Runaway Horse.

Handle with the Spanish halter, and by throwing the same as the kicking horse in harness, unless the habit is caused by fear of some object, such as an umbella, buffalo robe, or anything else that might frighten him or cause him to run away. If that should be the case, when you have him down take the frightful object, whatever it may be, around him, throw it onto him, at the some time rub and caress him; let him know it is nothing that will hurt him; then let him up,

put it on or over him, rub him with it, and in that way familiarize him with it until he cares nothing about it; then train him in harness until he will mind the word ho. Make him run, and if he does not stop at the word, stop him by the bit, so suddenly as to disconcert him and destroy his

confidence completely.

confidence completely.

Although we have given a powerful means of coercion, and of impressing the horse of his inability to resist the power of man, still practical and thorough as those means are, they are of but little account if not used with prudence and judgement. Men are too apt to depend upon main strength and stupid harshness for success in the management of horses, and with equal stupidity, the basis of control we have here given. It may be made in the hands of some a power to be abused with reckless disregard of consequences. Be firm, persevering, and prudent in the exercise of your power, when it is necessary to impress your subject with a sense of mastery, but be gentle, attractive and affectionate when he is obedient and submissive. Train your horse thoroughly with the Spanish halter each time before hitchwhen he is obedient and submissive. Train your horse thoroughly with the Spanish halter each time before hitching up. We find by experience, that horses subject to bad habits are ungovernable in the mouth. If we govern the mouth well, we have, in almost every instance, a good control of the horse, and it is an important requisite, under all circumstances, in the control of horses in harness. Then circumstances, in the control of horses in harness. Then control while driving until thorough and certain obedience is insured to the word. Strive to tell you horse exactly what you want him to do, and do not confuse him by attaching different meanings to the same word. It is quite common to say whoa when it is intended to go slower, or to attract the attention of the horse when standing, to let him know of your presence. Now if anything should happen, and you wished him to stop suddenly, he would not be likely to mind without a pull at the bit; and why should he, as long as he has been learned in that hap hazard way that who ameant anythink and nothing at the same time. Such training confuses the horse so much that, though he is naturally obedient and traceable, he will become careless and obstinate. Have a distinct word for every command, and make him understand that every command must be obeyed. Speak in a natural tone of voice to your horse, under all circumstances. Nothing confuses a horse more than screaming at him to have him hear. He is as acute in the sense of hearing as a man, and so sensitive, if nervous, as to have his pulse increase from six to ten beats a minute by one harsh word. Have your horse understand that things likely to frighten are your horse understand that things likely to frighten are harmless, and be sure not to whip for being frightened. If your horse is frightened at anything approaching, let him stand until it passes, but hold the reins snug and firmly, or he may swing around and upset you. If cars are passing, and are regarded with fear, let your horse face them, but hold him immovable with the reins. Always under such circumstances, talk encouragingly to him, remembering the slower you move him, the more power you have over him. There is but little danger of a horse kicking after being stopped, or while moving slowly. And so with the runaway horse. He will seldom make a second attempt at the time he has been foiled in his purpose and stopped. A horse frightened becomes reckless; consequently, never raise an umbrella suddenly or unexpectedly behind a horse afraid of such things. First raise it at his head and gradually carry it back, and then to make sure, if you have not a bit that will control your Forse easily, put on a Spanish halter, and carry it back in the wagon or buggy. Fear and anger are something that a good horseman should never exhibit in his countenance or voice, as the horse is a close observer, and soons learns to take advantage of such indications to become careless, or excited by anger, may become aggressive or unmanagable.

Let your lessons be thorough, but not very long. Be gentle and patient with the colt, but make the willful, stubborn horse feel the full extent of your power. Make the old reprobate know that the only alternative is unconditional submission to your will. Though if he should become too much heated and excited, it is prudent to stop, and repeat the lesson at some future time; but repeat until there is thorough and unconditional submission. After a horse submits, let your treatment be characterized by gentleness and good nature

Casting a Horse.

We would call particular attention to our method of throwing a horse. It is the easiest and most expeditious way now known, and is accomplished without any danger to either the operator or the animal. I have explained how to put on the strap and cord under the head of "Breaking Horses of Kicking in Harness." Whatever may be the bad habit of your horse; it is a very good plan to give him a regular course of training, and by throwing a horse down, and handling him just as you please while down, demonstrates to the understanding of the animal that it is worse than useless to try to resist control. It is the best way we have found to handle nervous horses, that would not allow their legs to be handled. After handling gently while down they find they are not hurt, and get over their fear, and will allow you to do with them as you like, anywhere.

Halter Pulling.

The bad halter puller will back as soon as he finds that he is restrained on his head. It is a very easy matter to break

up this habit. Put on your Spanish halter, and train the horse about until he will come to your readily, when you pull upon him a little sideways. Simply repeat this, gradually a little more on a line with his body at each repetition, until he yields as readily to being pulled forward as sideways; then take a wind around the top of a post, keeping the end of your halter in your hand, so as to let it render a little, if necessary, so as not to injure the jaw by too sudden a jerk. Now hit him over the head so as to make him pull back, but with the leverage of the Spanish halter he cannot pull very hard, and gives it up quickly. Repeat until he will stand and let you whip him sharply over the head and not straighten the cord.

Circus Tricks.

As many of our readers may wish to know how to teach their horses tricks, we will explain how it may be done.—Teaching your horse a few tricks serves greatly to keep an interest in him, and makes him appear fearless, intelligent and affectionate. In teaching a horse tricks it is best to give him one or two lessons daily, of half or three quarters of an hour each.

To Come at the Crack of the Whip, or Word.

Put on the spanish halter, stand off a few feet, holding the halter in your left hand and the whip in the right, crack the whip and say "come here, sir;" he does not know what this means, but you show him by pulling on the halter a little, which he will obey by moving towards you a few steps. This movement you should thank him for by feeding him something that he likes from your hand, and by petting and caress-

ing him upon the head and neck; then repeat in the same way, rewarding him as before, and so continue until he will walk up to you every time you crack the whip or say "come here sir," which he will soon learn to do. Each time he comes to you talk to him kindly and do not fail to give him his reward of corn or something he likes. You can now take off the halter and turn him loose, and repeat until he fully comprehends the way to avoid the whip is to come to you, which, with the encouragement of rewarding him for so doing, will soon inspire him with confidence, and he will come to you and follow like a dog. Be very cautious about the use of the whip or harsh language, remembering that perfect, cheerful obedience is your object, and that can be secured only by great patience and gentleness.

To make a Bow.

Take a pin in the right hand, between the thumb and fore finger, and stand at his left side near the hips; tell him to make a bow, then pricking him very lightly on the small of the back, this will make him move his head; keep pricking him till you get the right motion of the head, then caress him where you have been pricking him, or take your pin as before and stand up to his shoulder and prick him on the breast lightly, as if a fly were lighting, which to relieve he will bring down his head, which you will accept as a bow, and will reward by caressing on the side of the neck. Then repeat until he will bring down his head at the least motion of your hand towards his breast, or any other signal that he will understand readily.

To say No.

Stand by your horse's shoulder, tell him to shake his head,

at the same time prick him lightly on the withers or neck, which will cause him to shake his head as if to drive away a fly. You then caress him as before, and repeat until he will shake his head at the least indication of your touching him with the pin. You can train your horse so nicely in this way in a short time as to cause him to make a bow or shake his head, by merely turning the hand a little or moving it slightly towards him.

To Lie Down.

To teach a horse to lie down quickly you must lay him down a few times with the rope and strap, as described in tampering with vicious horses. When down treat your horse with great attention and kindness. After putting him down a few times in this way, he will usually lie down in a short time by taking up one foot and holding it in your hand, asking him to lie down; he will soon come down. When he will come on his knees by taking his foot in your hand, stoop as if intending to take it up, saying "lie down sir!" Then make him come down by a motion of the hand, and finally by simply telling him to lie down. In teaching a horse to lie down, be gentle, caress and reward him for lying down, and your horse, comprehending what you want and finding himself paid for compliance, will soon be as auxious to get down for the reward, as you are to have him do so.

To Learn to Waltz.

Put a surcingle around his chest and fasten the bridle-reins to it, the left rein much the tightest, bringing his head well round to the left side, then make him move forward, when he follows his head, and every time as he is turning his head from you, give him a sharp cut with the whip, which will make him jump round quickly until his head comes around to you again. Then you should caress and encourage him by talking kindly. He will then be slower to move his head from you, but you must continue with the whip every time the horses' hind parts are to you and his head from you, caressing every few minutes until he understands to move at the motion of the whip.

To Teach a Horse to Kiss you.

Teach him first to take an apple or something that he likes out of your hand; when gradually raising the hand nearer the mouth at each repetition until you require him to take it from your mouth, holding it with your hand, telling him at the same time to kiss you. He will soon learn to reach his nose up to your month, first to get his apple, but finally because commanded to do so, simply to repeat until your horse understands and will do the trick thoroughly.

Never lose courage or confidence in your ability because you do not bring about good results easily. To accomplish any thing of importance, remember it requires no ordinary resolution and perseverance. There will be no credit or importance attached to mastering and managing bad horses, if not difficult and apparently dangerous. No duty requires more firmness of in the control of the passions, or more fidelity to the principles of kindness and truth, than that of horsemanship.

To Shake Hands.

Tie a short strap to the forward foot below the fetlock, stand directly in front of the horse, holding the end of the strap in your hand, then say, "Shake hands, sir," and immediately pull upon the strap, which will bring his foot forward, and which you are to accept as shaking hands, thanking him for it by caressing and rubbing the leg, and so repeat until when you make the demand he will bring the foot forward in anticipation of having it pulled up.

This is a very easy trick to teach a horse. By a little practice a horse may be easily trained to approach, make a bow, shake hands, follow like a dog, lie down, etc., which

makes him appear both polite and intelligent.



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